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# Ash Area Remedial Action Plan

MDL Realty, LLC  
380 Horace Street  
Bridgeport, Connecticut

May 17, 2016

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## Executive Summary

This Remedial Action Plan (RAP) has been completed for the property located at 380 Horace Street in Bridgeport, Connecticut (the Site or the property). Environmental investigations at the Site have been completed by Haley & Aldrich (H&A), Inc., GZA GeoEnvironmental, Inc. (GZA), AECOM Technical Services, Inc. (AECOM), and Weston & Sampson. GZA identified 34 Potential Areas of Concern (PAOCs) during a Phase I Environmental Site Assessment (ESA) conducted in 2008. The PAOCs were assessed during a Phase II ESA completed by GZA in 2008 and limited additional investigations were completed by AECOM in May 2010 and September 2012 and by Weston & Sampson in December 2015 and January 2016.

This RAP addresses the area on the Site with ash fill (Ash Area), which is designated as PAOC 1 in the GZA Phase I ESA. Impacts identified in other areas of the Site will be addressed separately. The objectives of this RAP are to:

- Present a remedial strategy and construction methods to address identified chemical impacts in the Ash Area to meet the requirements of the Connecticut Remediation Standard Regulations, R.C.S.A. sections 22a-133k-1 through 22a-133k-3, inclusive, (RSRs) and the federal PCB regulations in 40 CFR Part 761; and
- Serve as an amendment to the Engineered Control Variance Part II Application submitted to the Connecticut Department of Energy and Environmental Protection (CT DEEP).

### Site Description and History

The Site consists of approximately 14 acres of land and is located in a mixed land use area of residential, commercial, and light-industrial properties. One two-story structure is located on the Site and the upper level is used for elevator manufacturing. A tenant operates from the lower level of the building and uses the warehouse space as a distribution center. Wetlands and an intermittent stream are located on the eastern portion of the property. The Site was developed for use as a medical supply manufacturer and distributor by Conco Medical Company (Conco) in 1967. Conco leased the property to an automotive parts manufacturer in 1993 and sold the property in 2011 to MDL Realty, LLC, the current property owner.

### Regulatory Framework

The Site is in the CT DEEP Property Transfer Program (PTP) and is subject to investigation and remediation in accordance with the RSRs. The Site is located in an area where groundwater has been classified as GB quality, meaning it is not considered suitable for consumption without treatment. Because an Environmental Land Use Restriction (ELUR) prohibiting residential use will be recorded on the land records following completion of the remediation, the Site will be subject to the industrial/commercial criteria in the RSRs. The applicable groundwater remediation criteria for the Site are the Surface Water Protection Criteria (SWPC) and the Industrial/Commercial Volatilization Criteria (I/C VC). Applicable soil remediation criteria are the GB Pollutant Mobility Criteria (GB PMC) and the Industrial/Commercial Direct Exposure Criteria (I/C DEC).

Polychlorinated biphenyls (PCBs) have been detected in soil samples at the Site at concentrations that require remediation under the PTP and the RSRs. Because the concentrations of PCBs are greater than  $\geq 50$  milligram per kilogram (mg/kg), once excavated, the PCB-impacted soil meet the definition of a PCB Remediation Waste and

remediation activities to address these PCB-impacted materials are subject to the federal PCB regulations in 40 CFR Part 761. Given the extent of impacts, the remediation will be performed pursuant to the risk-based disposal requirements found at 40 CFR §761.61(c). This RAP is the Notification for a risk-based disposal application, and therefore, requires approval by the USEPA Region 1 PCB coordinator.

## **Geology and Hydrogeology**

Bedrock beneath the Site consists of medium-grained gneiss. Bedrock has been encountered as shallow as two feet below ground surface (bgs) in soil borings advanced on the western portion of the Site, and has been encountered as deep as 11 feet bgs in the area where the activities described in the RAP are planned. Bedrock is overlain by glacially-derived till material consisting of fine sands and silt with gravel. Fill materials have been placed in the ash area and this layer varies in thickness from 1 to 8 feet.

Groundwater flow beneath the Site is southeast toward the intermittent stream, which conveys surface water off-site to the east, with a localized component of flow towards the northeast in the southeastern most portion of the site toward the intermittent stream. Groundwater flows under a shallow hydraulic gradient with seepage velocity (average linear velocity) estimated to range from 0.004 to 0.8 feet per day.

## **Conceptual Site Model**

The primary source of chemical impacts for the Ash Area is ash fill and debris, reportedly from the former City of Bridgeport-operated municipal incinerator, that was historically placed on eastern and southern portions of the Site. Constituents of concern (COCs) identified in fill include polychlorinated biphenyls (PCBs), petroleum hydrocarbons, polyaromatic hydrocarbons (PAHs), metals, and polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). The Ash Area is not, and has not historically, been used for any industrial or other activity. Based on the current use of the Site and existing environmental conditions, potential pathways for chemical transport include wind-blown migration of impacted surficial soil, leaching of chemicals in soil to groundwater, groundwater transport and surface water transport. Potential human and environmental receptors to impacted soil in the ash area include site workers, visitors, trespassers, and terrestrial species at the Site. Potential exposure pathways include direct exposure to impacted soil and inhalation of dust released from impacted surface soils. There are no uses for groundwater at the site and public water supply is available in the vicinity of the site so there are no known potential exposures to groundwater.

## **Environmental Investigation Summary and Recommended Remedial Strategy**

The ash fill contains COCs above applicable RSR soil criteria and PCBs are present in soil at federally-regulated concentrations. Remediation is required to eliminate the potential risk to human health and the environment posed by potential exposure to environmental impacts within the Ash Area. The proposed remedial strategy is to remove paving and subbase from the ash impacted southern parking lot and to excavate soil from other designated areas and to consolidate the excavated material in the designated consolidation area located on the eastern portion of the property. Excavation and consolidation areas will be covered with a soil cap or paved with clean materials to eliminate potential direct exposure and inhalation exposure risks. The constructed cap in the consolidation area will be constructed with drainage features to greatly limit soil erosion and a monitoring and maintenance plan will be developed and implemented for the long-term maintenance of all of the capped areas.

This approach will require CT DEEP approval of an application for an Engineered Control Variance, pursuant to RCSA § 22a-133k-2(f)(2)(A)(iv) and subsequent recording on the land records of an ELUR to prohibit disturbance of engineered control or remaining impacted soil. Remediation of PCB impacts will also require USEPA approval of this risk-based disposal application.

## 1.0 Introduction

Weston & Sampson has been retained by MDL Realty, LLC (MDL) to investigate and remediate, as necessary, the property located at 380 Horace Street in Bridgeport, Connecticut (the Site). The objective of this Remedial Action Plan (RAP) is to address environmental impacts related to ash fill materials that have been identified at the Site. Previous environmental investigations have shown that the fill material has been impacted by metals, petroleum hydrocarbons, polyaromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), polychlorinated dibenzodioxins (PCDDs), and polychlorinated dibenzofurans (PCDFs). This RAP is intended to serve as the Notification to the United States Environmental Protection Agency (EPA) requesting approval of a risk-based disposal of PCBs at the Site as required in Chapter 40 of the Code of Federal Regulations (40 CFR) §761.61(c). In addition, this RAP serves as an amendment to the Engineered Control Variance Part II (ECV Part II) application submitted to the Connecticut Department of Energy and Environmental Protection (CT DEEP).

The remedial strategy is to remove ash-impacted surface materials located on the eastern and southern portions of the Site and to consolidate these materials in the designated area on eastern portion of the property. An engineered barrier will then be constructed over both the excavated and the consolidation areas. The objective of the remedial action is to control risks posed by chemical impacts at the Site by eliminating potential dust migration pathways and direct exposure routes to human and environmental receptors.

### 1.1 Site Location and History

The Site is located at 380 Horace Street in Bridgeport, Connecticut in an area of mixed light industrial, commercial, and residential uses. The Site is abutted to the north by an undeveloped wooded area on property owned by Sporting Good Properties, Inc., to the east by industrial properties and a transfer station operated by the City of Bridgeport, to the south by Cogswell Street and residential properties, and to the west by Horace Street and residential properties. A Site Locus Plan is included as **Figure 1-1**.

According to the City of Bridgeport Tax Assessor, the Site encompasses approximately 14 acres zoned for light industrial uses and is developed with a two-story building. Paved parking areas are located to the southeast and northwest of the building. The remainder of the Site is covered with grass or wooded areas. Wetlands and an intermittent stream are located to the north and east of the Site building. Pertinent Site features are depicted on **C1**, Existing Conditions Plan, which is attached in **Appendix A**. **Appendix A** includes all of the Contract Drawings that will be provided to remedial contractors for bidding and provides the construction information and details necessary to review the proposed remediation.

A brief summary of the history of the Site is provided below:

- Prior to 1967, the Site was undeveloped and owned by a series of companies.
- In 1967, the Site was developed by Conco Medical Company (Conco), a medical supplies manufacturer. Conco operated a medical supply warehouse at the Site between 1967 and 1993.
- In 1993, Conco ceased operations at the Site. Casco Products Corporation (Casco), an automotive parts manufacturer, leased the property from Conco between 1993 and 2004. Conco remained as the owner of the property until 2011.
- In 2011, the Site was sold by Conco to MDL, the current site owner. MDL leases the property to Columbia Elevator, which currently occupies the upper floor of the building, which houses machines and equipment

for elevator parts production. The lower level of the building is occupied by a tenant who uses the space as a warehouse and distribution center.

There is no known historical or current use of equipment or products containing PCBs at the site. A former transformer was identified during the initial site investigation, but there was no record or evidence of a release at that location. The area of the former transformer was investigated and no PCBs were not detected. Thus, the source of the PCBs in the fill materials is thought to be from municipal incinerator ash placed on the Site prior to development, which was in 1967.

## **1.2 Geology and Hydrogeology**

### **1.2.1 Geology**

According to the *Bedrock Geological Map of Connecticut* (Rogers, 1985), bedrock beneath the Site consists of the Beardsley Member of the Harrison Gneiss, which is described as a grey to dark grey, medium-grained, lineated gneiss. Bedrock (assumed to exist at soil boring refusal) has been encountered during investigations at the Site, but in general is found well below the bottom of ash fill. A bedrock investigation has not been conducted.

According to surficial geology maps available on the Connecticut Environmental Conditions Online (CTECO) website, native materials to be encountered at the Site include till deposits overlying bedrock. Soils found beneath the ash fill encountered during investigations at the Site include fine sands and silt with gravel. This is consistent with glacially-derived soils described as till on the CTECO maps for the area.

### **1.2.2 Hydrology and Hydrogeology**

According to the Natural Drainage Basins Maps available on the CTECO website, a drainage divide bisects the Site in a north-south direction on the western portion of the property. The western-most portion of the Site is located in the Pequonnock River Watershed. The Pequonnock River is located approximately one mile west of the Site. Surface water and stormwater run-off generated on the western portion of the property generally flows towards the south and west. The remainder of the Site, including wetlands and the small and un-named, intermittent stream located on the eastern portion of the Site and is within the Yellow Mill Channel Watershed.

Previous investigations (e.g., GZA, H&A, etc.) and other available resources (e.g., USGS topographic map, aerial photographs and Weston & Sampson reconnaissance) indicate that an intermittent watercourse and associated bordering vegetated wetland are located on eastern and central portions of the Site. The limits of the wetlands were flagged and surveyed by AECOM in 2015 and is shown on Site drawings. The watercourse is identified as an intermittent stream by USGS, runs from the abutting property to the north of the site through the low-lying land, and discharges onto the Site through a 36-inch corrugated metal pipe culvert under the bituminous drive that runs along the northern property line. Flow is conveyed into a wetland that consists primarily of some shallow open water and adjacent herbaceous wetland.

Flow discharges from this wetland through a 48-inch reinforced concrete pipe in the central part of the Site, which underlies the access point to the eastern portion of the Site. South of this point, the watercourse is a channelized feature with no bordering vegetated wetland. A drainage ditch, which receives runoff from the facility stormwater handling system through a 12-inch corrugated metal pipe, merges with the unnamed stream at the northern edge of the grassed area that borders Cogswell Street. Flow from the unnamed stream is then conveyed off-site to the east through a second 48-inch reinforced concrete pipe culvert, and from there conveyed via the storm-drainage system extending east of the Site to a small retention pond. This pond discharges into a south-flowing watercourse system that extends from Success Lake to the north, through Stillman Pond to the south, and eventually into the Yellow Mill Channel and Bridgeport Harbor.

There is a stormwater drainage system located on the southern portion of the Site, which conveys stormwater to the intermittent stream, which in turn discharges to a small pond located approximately 500 feet east of the Site on land owned by the City of Bridgeport. This stream, which has its headwaters on the Sporting Good Properties, Inc.

site to the north, is mapped as a Class A Surface Water Body on the DEEP Water Quality Classification map for Bridgeport, dated August 2014. However, the stream is impacted by the historical placement polluted fill over much of its length including that portion on the Sporting Good Properties, Inc. Surface water and stormwater run-off generated on the eastern portion of the Site generally flows in southerly and easterly directions, except locally on the topographic high at the eastern end of the site from which stormwater run-off is radial.

Groundwater monitoring has been performed at the Site via a network of 16 monitoring wells. Groundwater levels were most recently measured on October 10, 2012 by AECOM. Depth to water measurements ranged from 2.72 feet below ground surface (bgs) in monitoring well GZA-MW-4 to 10.68 feet bgs in monitoring well B4-OW. A groundwater contour plan, depicting groundwater elevations and contours from the October 2012 monitoring event is included as **Figure 1-3** which includes groundwater elevations determined at each monitoring location and is attached in **Appendix B**.

Based on groundwater elevations recorded in October 2012, groundwater in the Ash Area generally flows towards the east and south toward the wetland and intermittent stream. There also is a component of flow towards the northeast in the portion of the Site south of the intermittent stream. The groundwater table at the Site is relatively flat and groundwater flows under an average gradient of 0.007. Hydraulic conductivity for soils at the Site was estimated using ranges for silty- to fine-grained sands (Fetter, 2001). Using the calculated average hydraulic gradient for groundwater and estimated hydraulic conductivity, the groundwater seepage velocity ( $V_s$ ) can be estimated using the following form of Darcy's Law:

$$V_s = \frac{K * i}{N_e};$$

where:

K = horizontal hydraulic conductivity (feet/day),  
 i = horizontal hydraulic gradient (feet/foot), and  
 $N_e$  = effective porosity (unitless).

Using Darcy's equation and Site-specific hydrogeologic parameters, the estimated range of groundwater seepage velocity is between 0.004 to 0.8 feet per day.

### 1.3 Previous Environmental Investigations

Available reports and associated documents pertaining to previous environmental investigations at the Site are summarized below.

#### 1.3.1 Report on Environmental Site Assessment (Haley and Aldrich, 2002)

Haley & Aldrich (H&A) completed a Phase I and II Environmental Site Assessment (ESA) in 2002 and available reports are included in **Appendix C**. Findings of the investigations of the site are summarized below.

- Environmental investigations, including historical research and soil, groundwater and surface water sampling, commenced at the Site in 1991. Historical research indicated that eastern and central portions of the site were historically used to dispose of municipal solid waste incinerator ash, miscellaneous debris, fill, and possibly abandoned automobiles and tires. There were no automobiles currently disposed on the property but tires were observed on the surface on the eastern portions of the property. Groundwater monitoring conducted in 1991 indicated groundwater impacts by metals including arsenic, cadmium, lead, mercury, thallium, and zinc. Soil investigation results indicated PCBs, PCDDs, and PCDFs were present in fill material on the eastern portion of the Site.

- H&A conducted additional Site investigations in 1992 and 1993. PCBs, TPH, VOCs, PAHs, metals and PCDDs/PCDFs were identified in samples from the fill material throughout much of the eastern portion of the site.
- Chemicals used and stored at the Site by Conco included caustic compounds, dyes, hydrogen peroxide, formic acid, lubricating oil and limited quantities of solvents.
- Wastewater generated at the Site was discharged to the municipal sewer.
- Fuel storage receptacles identified at the Site include one 10,000-gallon No. 4 fuel oil underground storage tank (UST), which was located near the southwestern corner of the property, and one decommissioned 7,500-gallon fuel oil UST, which was located along the southern property boundary on the western portion of the property. The 7,500-gallon UST was installed in 1968 and was abandoned in place in 1988. These USTs are located outside the Ash Area that is the subject of this RAP.
- A 10,000-gallon UST was formerly located near the southeast corner of the building and was relocated to the southwest corner of the property in 1975 during an expansion project to the building. The UST was found to be leaking in 1989 and was removed and replaced with the current 10,000-gallon UST in 1990. Approximately 5,000 gallons of oil were released from the UST. A limited subsurface investigation was conducted subsequent to the UST removal in 1989. Three soil borings were advanced in the area of the UST. Significant soil impacts were not identified during the investigation. This UST is located outside the Ash Area.
- The Site was leased to Casco in 1993. Hazardous substances used or stored at the Site by Casco included nickel plating solutions, caustic compounds, acids, lubricating oils, organic solvents, paints, and solder. Casco operated a permitted industrial wastewater pre-treatment plant for the nickel plating wastewater prior to its discharge to the municipal sewer. Metal hydroxide sludge was removed from the Site as hazardous waste.
- The Phase II summarized the findings of additional groundwater monitoring and soil investigations conducted at the site. A test pit program was conducted to evaluate the nature and extent of the fill and ash previously identified at the site. The soil samples were analyzed for Extractable TPH (ETPH), VOCs, total and leachable metals, and PCBs.
- The 2002 Report on Environmental Site Assessment concluded that elevated levels of PCBs, TPH, and semi-volatile organic compounds (SVOCs) were detected in the incinerator ash and other fill deposits located in the eastern portion of the property.

### **1.3.2 Report on Limited Phase III and Supplemental Limited Phase III Environmental Site Assessment (Haley & Aldrich, 2003)**

The objective of the limited Phase III ESA was to determine the nature and extent of the impacted ash and soil fill identified in previous assessments and to determine the extent of residual TPH-impacted soil identified along the northern side of the building. COCs were identified in the Phase III and included VOCs, PCBs, PAHs, ETPH, metals, and PCDDs/PCDFs. The investigation also included the evaluation of sediment and surface water quality within the wetlands located north and east of the Site.

Approximately 200 soil borings were advanced in the Ash Area. Soil samples collected from the borings were analyzed for PCBs, lead, arsenic, ETPH, VOCs and PCDDs/PCDFs. Select samples were also analyzed for leachable PCBs, PAHs, lead, and arsenic.

The results of the investigation indicated that the ash fill ranges in thickness from approximately one to 11 feet and is interlayered with sand fill material and demolition debris. COCs were identified at concentrations above applicable soil remediation criteria. The investigation also identified COC impacts to the wetlands.

### 1.3.3 Phase I/II Environmental Site Assessment (GZA, 2008)

The objective of the GZA Phase I/ Phase II ESA was to identify potential areas of concern (PAOCs) and determine if releases had occurred from the PAOCs. Thirty-four PAOCs<sup>1</sup> were identified during the Phase I/ II ESA and available portions of the report are included in **Appendix D**. PAOC designations applied by GZA have been retained throughout this report. The Ash Area was designated as AOC 1. Other AOCs located within the limits of the Ash Area and discussed in this report include:

- AOC 8 – Oily soil stockpile, southern parking lot area, removed in 1991.
- AOC 16 – Groundwater impacts (eight of the sixteen monitoring wells installed at the site are located within the ash area).

Other PAOCs will be addressed separately.

### 1.3.4 Remedial Investigation (AECOM 2010 and 2011)

AECOM performed a remedial investigation (RI) in the Ash Area in 2010 and 2011. Several locations previously sampled in earlier investigations were re-sampled to compare environmental conditions with historical data. Additional soil samples were collected to further evaluate the extent of PCBs impacts to soil/fill. Select soil samples collected during the investigation were analyzed for leachable PCBs and/or total PCDDs/PCDFs. Results from the May 2010 investigation are discussed further in **Section 3.0**, along with a summary of historical PCB analytical data.

### 1.3.5 Remedial Investigation (Weston & Sampson 2015 and 2016)

Weston & Sampson performed a focused RI in the Ash Area in December 2015 and January 2016. Several locations previously sampled in earlier investigations and known to contain high concentrations of PCBs were re-sampled to determine total PCB concentrations. Select soil samples from this group were then submitted for analysis of total and leachable PCDDs and PCDFs. Results from this investigation are discussed further in **Section 3.0**.

## 1.4 Conceptual Site Model

The Conceptual Site Model (CSM) defines what is known about the source(s) of chemical impacts, mechanisms of release, impacted media, migration pathways, and potential receptors. The CSM for the Site was developed using investigation data obtained during previous and recent environmental investigations at the Site. This CSM pertains to the Ash Area of the Site and includes two other previously identified AOCs, which are included based on their locations at the Site.

### 1.4.1 Potential Source Areas

The primary source of impacts at the Site is the ash material generated from a municipal solid waste incinerator, which was placed as fill at the Site sometime prior to 1967. Other potential sources of impacts have been identified in the Ash Areas of the Site and are included in this discussion based on their location. The identified sources of chemical impacts pose potential risk to human health or the environment. In addition to the ash fill, other potential sources include:

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<sup>1</sup>PAOC was the nomenclature designated by GZA in 2008. For the purposes of this report, areas where remediation is required will be referred to as *Areas of Concern* (AOCs). For example, PAOC 1 will be referred to as AOC 1 from this point forward.

- An oily soil stockpile formerly located in the southern parking lot. Oil-stained soil was excavated during a fuel oil UST removal at the Site and stockpile on the southern parking lot. The stockpile was removed in 1991. This area has been designated as AOC 8.
- Groundwater impacts in the Ash Area. Eight of the 16 groundwater monitoring wells at the Site are located in the ash area. Arsenic has been reported in groundwater samples from 3 of the 8 ash area monitoring wells at concentrations above the default SWPC.

The only potential PCB-containing equipment at the Site was a former transformer, the location of which was investigated, and no release was identified. The only known source of PCB impacts is the ash fill being addressed by this RAP. This ash fill has also been identified as being impacted with metals, TPH, PAHs, PCDDs and PCDFs.

#### **1.4.2 Potential Sensitive Receptors and Exposure Conditions**

Potential human and environmental receptors are present at the Site and may be at risk from identified environmental impacts. The primary risk associated with chemical impacts at the Site to potential human or ecological receptors is direct exposure to PCB-impacted fill material located in surficial soil in undeveloped areas (grass or wooded) at the Site or inhalation of dust generated from surficial soil in these areas. The objective of this RAP is to eliminate risk associated with impacted surficial soils and potential direct exposure or inhalation risks to human and environmental receptors. A post-remediation CSM is provided in **Section 9.0**.

#### **1.4.3 Chemical Fate and Transport**

Potential migration pathways considered for the CSM include:

- Leaching of COCs from impacted soils.
- Groundwater transport of COCs through natural soils, fill and subsurface conduits.
- Wind-blown dust containing COCs or volatile air emissions from undeveloped portions of the Site.

In addition to the potential migration pathways, the mobility of chemicals through the environment depends on physical properties of the chemical (solubility in water, volatility, etc.) as well as properties of the media (soil porosity, pH of groundwater, etc.).

##### **1.4.3.1 Leaching from Soil to Groundwater**

During and following precipitation events, a portion of the stormwater run-off generated during the event is absorbed and infiltrates into the ground. As water percolates through impacted soil, chemicals may leach from the soil into the water and become mobile. As infiltrated water contacts and commingles with groundwater, COCs present in the infiltrated water may impact groundwater. In addition, mobile constituents may leach directly to groundwater from impacted soil that is present beneath the groundwater table. The potential for chemical impacts in the soil to migrate in this manner depends on various factors including physical properties of the chemicals, soil, and leachate.

The depth to groundwater in the Ash Area ranges from four to ten feet bgs. Based on the previous investigation results, the ash was placed on the original surface of the area and is now present between approximately one and eleven feet bgs, indicating ash material is likely located both above and below the approximate location of the groundwater table throughout the Ash Area. The most of the ash fill is in areas of the Site not covered by an impervious surface (asphalt or concrete). Therefore, chemicals have the potential to leach directly from impacted saturated soil to groundwater or may leach from unsaturated soils to groundwater via surface water infiltration and percolation through the vadose zone. The COCs detected in the ash area, ETPH, PAHs, PCBs, PCDDs, PCDFs, and metals including cadmium, mercury, lead, thallium, and zinc, are not highly soluble and therefore are not particularly prone to leaching into groundwater at rates sufficient to generate a groundwater plume. Arsenic may leach and transport in groundwater under reducing conditions and arsenic in groundwater is discussed further below.

#### **1.4.3.2 Groundwater**

Dissolved-phase chemicals migrate in groundwater through the processes of advection, mechanical dispersion, and diffusion. As impacted groundwater flows through soil, mixing with non-impacted groundwater occurs, resulting in dilution of COCs. Groundwater transport of COCs at the Site can occur through soil and also potentially through conductive construction materials (sand and gravel) associated with man-made features, such as drainage systems and subsurface utility conduits. In some areas of the Site, utilities are located at or beneath the groundwater table and may be a preferential pathway for groundwater migration of COCs.

Hydrogeologic conditions at the Site indicate shallow hydraulic gradients and low estimated hydraulic conductivities and groundwater velocities, limiting the potential for migration of COCs both on- and off-site. Groundwater transport is further limited by sorption of hydrophobic constituents, like PAHs, PCBs, heavy TPH fractions and metals to the soil matrix. These constituents seldom migrate as a dissolved species significantly beyond the immediate area of a release, with the exception of arsenic, which migrates in soluble complexes in groundwater that has reducing conditions, which exist at the site. Transport of COCs in groundwater will be further evaluated in the discussion of analytical data from the site in **Section 3.0** and in the post-remediation monitoring plan described in **Section 10.0**.

#### **1.4.3.3 Vapor Migration**

Vapors produced from evaporation from soil or volatilization of COCs in groundwater can migrate through unsaturated soil and along subsurface utility corridors. Vapors can also enter ambient air through porous surfaces and undeveloped areas of the Site. In addition, there is an extensive network of subsurface utility conduits at the Site that could provide preferential pathways for vapor migration. The vapor migration concern is specific to VOCs. PAHs, ETPH, PCBs, and metals are not considered to be constituents that pose a risk for soil vapor and indoor/ambient air.

VOCs have been detected in soil and groundwater samples at few locations throughout the Site, and none of the reported concentrations were above the applicable volatilization criteria. The vapor migration pathway thus does not appear to be a significant transport pathway at the Site.

#### **1.4.3.4 Wind-Blown Emissions and Migration**

Migration of COCs on soil particulates can occur via airborne dust emissions from undeveloped areas of the Site. The Ash Area is primarily covered with developed surfaces including paved areas, concrete walkways and pads, and with well-developed grassed and wooded areas. However, ash fill could become exposed at the ground surface and be subject to potential airborne emissions. Given the developed condition of the Site, wind-blown emissions and migration are not considered a significant transport pathway for the Site but the potential exists.

#### **1.4.3.5 Surface Water and Sediment**

Surface water in the form of stormwater run-off or stream flow is also a potential migration pathway at the Site. Stormwater run-off or flooding of the on-site stream and wetlands could transport chemicals from exposed surficial soil areas at the Site. In general, stormwater and/or floodwater from the Site tend to flow in southerly and easterly directions. However, surfaces in the Ash Area are either well vegetated or covered with asphalt or concrete, limiting the potential for erosion and runoff of suspended solids. In addition, the Site has a storm drainage system designed to collect and convey stormwater run-off in a controlled manner.

Surface water flow within the on-site stream is also a potential migration pathway for chemicals present in the surface water or sediments of these water bodies. This migration pathway is complicated by the nature of the intermittent stream, which flows onto the Site from a developed upstream watershed where potential off-site impacts to surface water and sediment may originate.

Surface water and sediment samples were collected from the Site in 2003. ETPH and VOCs, including toluene, methyl tert-butyl ether, and 1,1-dichloroethane, were reported at concentrations above laboratory reporting limits in surface water samples. ETPH, PAHs, metals, and PCDDs/PCDFs were reported at concentrations above laboratory reporting limits in sediment samples collected from the Site. Based on historical sampling data, it appears that surface water and sediment quality has been impacted by historic Site conditions or potential upstream sources and this migration pathway is present at the Site.

## 1.5 Project Objectives and Recommended Remedial Strategy

A remedial approach to address the Ash Area at the Site has been developed based on environmental investigation results, a review of the state and federal remediation requirements, and meetings and discussions between MDL, Weston & Sampson, CT DEEP, and the USEPA. The objective of the remedial strategy is to achieve compliance with the CT DEEP RSRs and the federal PCB regulations and to eliminate risk posed by the Ash Area to human and environmental receptors. Additional information pertaining to proposed remediation activities is included in **Section 5.0**.

The remedial approach is to excavate certain ash-impacted materials, consolidate the excavated materials on-site with other ash-impacted materials, and construct an engineered barrier over the excavation and consolidation areas to prevent direct exposure to the ash fill or dust generated from surficial soil. The barrier will be constructed of asphalt in the southern parking lot area and soil in remaining areas. The conceptual plan includes excavation in areas located west and south of the wetlands and stream, and consolidation of the excavated ash in an area east of the wetlands and stream. No changes will be made to surface elevations within the 100-year flood plain at the site and no soil will be excavated from below the high-water level or within wetlands at the site.

Changes were made to the remedial design based upon discussions with EPA and CT DEEP following submittal of the ECV Part II Application to CT DEEP. These changes are described in more detail within this remedial plan and include:

- For areas to be completed with turf, the cap thickness will be 1.5 feet thick and will consist of (from bottom to top):
  - Six inches final placed and compacted thickness of clean backfill material;
  - Demarcation barrier constructed of orange polypropylene mesh fencing and 12 ounces per square yard geotextile fabric;
  - Six inches final placed and compacted thickness of clean backfill material; and
  - Six inches final placed and compacted thickness of clean topsoil.
- For areas to be completed with asphalt, the cap thickness will be 1 foot thick and will consist of (from bottom to top):
  - Demarcation barrier constructed of orange polypropylene mesh fencing and 12 ounces per square yard geotextile fabric;
  - 7 inches final placed and compacted thickness of suitable subbase material; and
  - 5 inches of asphalt paving.
- Three areas of soil known to contain total PCB concentrations >100 mg/kg will be excavated first to the horizontal and vertical extents indicated on the Contract Drawings and placed at the base of the consolidation area.
- Materials excavated to be consolidated onsite will be compacted to 92 percent of their modified Proctor Density as determined by ASTM D1557.
- All excavation areas and the consolidation area will be graded and compacted prior to placing any backfill materials. These areas will be inspected during compaction to determine if corrective actions are required prior to placing any additional materials.

Other changes were made to the remedial design, which include:

- Grades on the north and south side of the consolidation area have been modified to allow vehicular access on the south side and to limit the potential for erosion.

- Drainage structures have been improved to contain stormwater runoff from a 100-year storm event and additional areas for the use of turf reinforcement mat have been included.
- Downchutes proposed for the sides of the consolidation area have been eliminated by installation of manholes and piping that will direct stormwater runoff collected in the perimeter drainage swale to a sedimentation and retention structure. The elimination of the downchutes will make maintenance easier and eliminate a potential erosion area.
- An access road constructed of stone will be constructed so that the solar farm that will be constructed on the Ash Area post-remediation may be accessed by vehicles.
- Two additional loading docks and a forklift path will be installed on the southeast corner of the building to allow for continued use of the warehouse space in the lower level of the structure during performance of the remediation.

## **2.0 Applicable Regulations and Project Remediation Criteria**

Investigation and remediation at the Site are subject to the Property Transfer Act, Connecticut General Statutes (CGS) Sections 22a-134 through 22a-134e. The CT DEEP Site Characterization Guidance Document was used as a reference during AECOM and Weston & Sampson investigation activities. The RSRs define the requirements for remedial activities at the Site. The remediation will require approval from CT DEEP for the use of an engineered control under the provisions of RCSA 22a-133k-2(f)(2). The remedial plan serves as an amendment to the Engineered Control Variance Part II application that was previously submitted to CT DEEP.

Due to the presence of PCBs in the fill material at concentrations  $\geq 50$  mg/kg, remediation activities at the Site are subject to the federal PCB regulations set forth in 40 CFR Part 761. Approval for the remediation is sought under the provisions of §761.61(c).

No materials contained within delineated wetlands or beneath the high-water mark of a watercourse regulated by the Clean Water Act will be disturbed and a permit from the United States Army Corps of Engineers (USACE) will not be required. A permit from the City of Bridgeport Inland Wetlands and Watercourses Agency (IWWA) has been obtained and the Bridgeport Planning and Zoning Commission (P&Z) has indicated that they do not need to review the remedial project. A registration required by the General Permit for discharge of stormwater associated with construction activities has been submitted to the CT DEEP.

### **2.1 Federal Requirements**

The disposal of PCB Remediation Wastes is regulated under 40 CFR Part 761. MDL is seeking USEPA approval of the remediation, described in this RAP, as a risk-based disposal, under §761.61(c). A deed restriction in the form of an ELUR will be recorded on the land records, following the completion of remedial construction. Following placement of the cap, the intended future use of the capped Ash Area is as a solar farm, which is a low occupancy use. Groundwater data collected to date indicate that PCBs are not detected in groundwater with reporting limits  $< 0.5$   $\mu\text{g/L}$ .

### **2.2 CT DEEP Remediation Standard Regulations**

This Site is an “establishment,” as defined in the Transfer Act. MDL filed a Form III and Environmental Conditions Assessment Form (ECAAF), which were submitted to the CT DEEP on October 6, 2011. Investigation and remediation activities at the Site are being conducted under the supervision of a Licensed Environmental Professional (LEP). The RSRs include default numerical criteria for compounds detected at the Site and these will be applied.

#### **2.2.1 Groundwater**

The Site is located in an area where the CT DEEP has classified groundwater as GB quality. Designated uses for GB quality groundwater include industrial process and cooling waters and base flow for hydraulically connected surface water bodies. GB quality groundwater is presumed not suitable for human consumption without treatment. Because the groundwater in the Ash Area discharges to a wetland or intermittent stream, the applicable RSR criteria for groundwater are the criteria found in Appendix D of the most recent Water Quality Standards (chronic and acute aquatic life criteria) and the I/C VC; an ELUR prohibiting residential uses will be recorded on the land records for

the Site . No compounds other than arsenic have been detected at concentrations that exceed applicable remedial criteria for groundwater. The arsenic exceedances have been completely delineated by the existing data.

### **2.2.2 Soil**

Applicable clean-up criteria for impacted soil at the Site include the GB Pollutant Mobility Criteria (GB PMC) for protection of groundwater from potentially leachable constituents in unsaturated soils, and the I/C DEC, for protection of human health from potentially accessible soils.

The RSRs require that analytical results for metals and PCBs be compared to the GB PMC using analysis by the synthetic precipitation leaching procedure (SPLP) or toxicity characteristic leaching procedure (TCLP). Metals and PCBs results obtained via SPLP analysis were compared to the applicable GB PMC for the respective constituents. While some PCB concentrations in SPLP extracts from individual samples were greater than the GB PMC, groundwater data do not indicate the presence of dissolved PCBs in groundwater at the site. On November 15, 2013, CT DEEP approved a request to use groundwater data as alternative method to determine compliance with the GB PMC.

PCDDs and PCDFs have been identified in soil at the site; there are no published GB PMC for these constituents. In general, the higher concentrations of PCDD/PCDF corresponded to those locations where PCB concentrations were greater. Select soil samples were collected and analyzed for total PCBs at locations known to contain PCBs at higher concentrations. Of these samples, two were analyzed for total and leachable PCDD/PCDFs. These two samples were identified as containing higher concentrations of total PCDD/PCDFs but there were no detection of the PCDD/PCDFs in the sample leachates. Because there were no detections of PCDD/PCDFs analyzed by SPLP, no additional polluting substance (APS) for GB PMC will be submitted to CT DEEP for approval, but an APS for industrial/commercial direct exposure criteria will be submitted to CT DEEP for approval.

### **2.2.3 Environmental Land Use Restriction**

An Environmental Land Use Restriction (ELUR) is an easement granted to the CT DEEP by a property owner that is recorded on the municipal land records for the property. The RSRs require the use of ELURs to ensure that the property owner, and future property owners, continue to maintain those conditions that were relied upon by the LEP when verifying the site, under the RSRs.

An ELUR will be recorded on the City of Bridgeport land records following the implementation of the RAP and construction of the EC. The ELUR will prohibit residential activities on the Site and will the disturbance of the EC or impacted soils beneath the EC.

## 3.0 Ash Area Investigation Results

The following section summarizes the results of environmental investigations performed in the Ash Area. Investigations in the Ash Area were completed by H&A in 2002 and 2003, by GZA in 2008, by AECOM in 2010 and 2011, and by Weston & Sampson in December 2015 and January 2016. The extent of the Ash Area and soil, sediment and groundwater sampling locations are depicted on **Figure 3-3** prepared by AECOM and attached in **Appendix B**. Soil and groundwater analytical results obtained by AECOM are summarized in **Tables 3-1 through 3-3**, which are also attached in **Appendix B** as are copies of analytical laboratory reports pertaining to AECOM investigations. Historical soil, groundwater and sediment data obtained by others between 2002 and 2008 are included in **Appendices C through E**. Investigation results have been evaluated and compared to the RSRs to inform the proposed remediation plans to address the Ash Area.

### 3.1 AOC 1 – Ash Area

AOC 1 is the area where incinerator ash was placed as fill material. Soil investigations in AOC 1 were completed by H&A in 2003 and AECOM in 2010 and 2011. The limits of AOC 1 were delineated by H&A during their 2003 soil investigation by observations of ash fill in soil borings and test pits. As shown on **Figure 3-1**, AOC 1 encompasses a majority of the eastern portion of the property, which is a grassy area located behind the building, as well as the southern and southeastern portions of the property, which are paved parking and grass areas, respectively. Ash fill is located along the boundaries of the un-named intermittent stream and adjacent to the wetlands area. Ash fill has also been identified in soils within the wetlands boundary (as determined by GZA in 2008).

Soil and sediment data describing PCB concentrations detected during historical investigations and AECOM investigations and are depicted alongside the extent of ash fill on **Figure 3-1**. The investigation performed by H&A incorporated soil borings, sediment sampling, and test pitting to delineate the extent of ash fill and the concentrations of PCBs and other COCs in the ash. H&A soil analytical results are presented in **Appendix C**. AECOM performed additional investigation to confirm the results of the H&A investigation and in an effort to delineate the presence of PCBs in those locations where PCBs were detected at concentrations greater than 50 mg/kg. Soil analytical results from the AECOM investigation are summarized in **Table 3-1** included in **Appendix B**. The following is a summary of investigation results pertaining to the ash fill. Where comparison is made to RSR criteria, because an ELUR prohibiting residential use will be recorded on the land records for the Property, Industrial/Commercial criteria are discussed rather than the default Residential criteria.

- The thickness of the fill ranges from less than one foot to approximately eleven feet.
- Petroleum hydrocarbons, VOCs, PCBs, PAHs, metals and PCDDs/PCDFs have been reported in soil samples collected from the fill at concentrations above laboratory reporting limits. These chemical constituents are widespread throughout the fill, but appear to be constituents of the fill, rather than releases in the area. Petroleum hydrocarbons, PCBs, PAHs, and lead and arsenic are present at concentrations applicable criteria. There are no RSR soil criteria for PCDDs or PCDFs.
- PCBs, PAHs, ETPH, and arsenic have been reported in soil samples at concentrations above the I/C DEC.
- PCBs analyzed by SPLP have been reported in soil samples at concentrations above the applicable GB PMC. However, PCBs have never been detected in groundwater samples collected from monitoring wells located in the ash area. On November 15, 2013, DEEP approved a request to demonstrate compliance with the GB PMC using the existing groundwater data for PCBs.

- Metals analyzed by SPLP have not been reported at concentrations above the GB PMC in any soil samples collected from the ash area.
- Total PAHs have been reported at concentrations above the GB PMC in soil samples collected from the ash. However, PAHs analyzed by SPLP were only detected in two soil samples collected. The reported concentrations of PAHs analyzed by SPLP were below applicable criteria (i.e., the Groundwater Protection Criteria x 10).
- PCDDs and PCDFs do not have published RSR criteria. However, as indicated in Section 2.2.2, these compounds have extremely low solubility and are even less likely to leach into groundwater than PCBs. Confirming that low solubility, no PCDDs/PCFSs were detected in soil samples analyzed by SPLP. An APS industrial/commercial direct exposure criteria will be submitted to DEEP for approval.
- The only COC detected in groundwater in the Ash Area is arsenic. As noted in Section 2.2.1, the applicable groundwater criteria are the acute and chronic aquatic life criteria. Arsenic has been reported at concentrations below the aquatic life criteria in the groundwater samples collected from the three monitoring wells located in the ash area (B4-OW, B106A-OW and GZA-MW-1 – October 2012).

As part of the H&A investigation, soil borings were completed at approximately 50-foot spacing throughout the Ash Area and samples from those borings were analyzed for PCBs. (Spacing varied in areas with underground utilities.) AECOM's follow-up investigation included re-sampling and delineation around prior H&A soil borings from which samples contained PCBs at concentrations greater than 50 mg/kg. Where soil borings were co-located with previous borings, analytical results did not consistently correlate. The variation between samples is attributed to small scale differences in the concentrations of PCBs in the ash fill material. Similar variability was also observed between some duplicate sample pairs.

The resultant characterization of PCB distribution demonstrates the following:

- PCB impacts are directly associated with the ash fill. While there are pockets of fill containing PCBs at greater than 50 mg/kg, there is no consistent spatial pattern to these impacts, either horizontally or vertically. Various concentrations were detected at a variety of depths.
- The limits of the ash fill were delineated by observations in soil borings and test pits, and COC concentrations drop sharply between the ash fill and the surrounding soil, both laterally between soil borings and vertically within soil borings. Test pits completed to the east of the Ash Area depicted on **Figure 3-1** did not contain ash and generally contained less fill thickness overlying native material. East of the Ash Area, the ground surface rises and the thickness of the overburden thins against rising bedrock surface, which appears to outcrop in a small portion this area, and fill was not observed in this area.
- While PCB concentrations greater than 1 mg/kg were detected in samples from outside the Ash Area, these concentrations were lower than those detected in the fill and are believed to represent a secondary impact from the fill (e.g., erosion and deposition) or smaller amount of ash mixed-in with the soil at the time of fill placement.
- PCB concentrations greater than 1 mg/kg were fairly well delineated by analytical data to the property boundary. .

Based on the heterogeneous nature of the fill, and the presence of PCBs throughout the Ash Area, it was concluded that remediation should address the entire Ash Area AOC.

### 3.2 AOC 8 – Former Oily Stockpile

AOC 8 includes a former stockpile of petroleum-impacted soil, which was placed in the southern parking lot area within the approximate boundaries of AOC 1. In 1989, following the installation of a new 10,000-gallon fiberglass-walled UST, a fuel inventory discrepancy led to the discovery of a release of approximately 5,000 gallons of fuel oil to the subsurface. The soil stockpile was generated during a remedial soil excavation effort to address petroleum-

impacted soils resulting from the release. The stockpile was removed from the Site in 1991. Oil discharge from the impacted soil stockpile reportedly stained pavement in the area, which is why the stockpile was included as an AOC.

H&A collected soil and groundwater samples in the approximate area of the former stockpile in 1993. Petroleum-related compounds were detected in soil and groundwater samples. However, based on the location of AOC 8 within the Ash Area, it is unclear whether impacts are related to the ash fill or the former stockpile. Any potential residual impacts associated with the former stockpile will be addressed via the planned remediation for AOC 1. AOC 8 will not be discussed further in this report.

### 3.3 AOC 16 – Groundwater Impacts

Groundwater monitoring was completed at the Site by GZA in 2008 and AECOM in June 2011 and October 2012. Groundwater monitoring has been performed using a network of 16 groundwater monitoring wells. Eight of these monitoring wells are located in the ash area: TP1-OW, TP5-OW, GZA-MW-1, GZA-MW-3, B4-OW, B104A-OW, B-106A-OW and B108-OW.

#### 3.3.1 GZA Groundwater Sampling Event, March 2008

GZA collected groundwater samples from six of the eight Ash Area monitoring wells in 2008. (Samples were not obtained from TP5-OW and B108-OW.) The samples were analyzed for VOCs, ETPH and/or metals. VOCs were reported at concentrations below the default SWPC in five of the groundwater samples analyzed. ETPH was reported at concentrations above laboratory reporting limits in three of the samples analyzed. SWPC have not been established for ETPH. Arsenic was reported at concentrations above the default SWPC in all six groundwater samples collected from the Ash Area. Historical groundwater analytical data summary tables prepared by GZA are included in **Appendix D**.

#### 3.3.2 AECOM Groundwater Sampling Event, June 2011

On June 16 and 17, 2011, AECOM collected groundwater samples from seven of the eight ash-area monitoring wells at the Site. (A sample was not obtained from GZA-MW-1.) These groundwater samples were analyzed for PCBs. PCBs were not reported at concentrations above laboratory limits in any of the samples analyzed. The laboratory reporting limits were all below applicable CT DEEP RSR criteria. Groundwater analytical data from this event are summarized in **Table 3-2** which is attached in **Appendix B**.

#### 3.3.3 AECOM Groundwater Sampling Event, October 2012

On October 10 and 11, 2012, AECOM collected groundwater samples that were analyzed for total arsenic from the eight ash-area monitoring wells. Arsenic was not detected in five of the samples, and reported at a concentration above the default SWPC, but below the applicable chronic aquatic life criterion in three of the groundwater samples collected from within the ash area (B4-OW, B106A-OW, and GZA-MW-1). Groundwater analytical data from this event are summarized in **Table 3-2**.

### 3.4 AOC 30 – Stormwater Drainage System

The stormwater drainage system is located in the southern parking area and includes catch basins and underground stormwater lines. This stormwater drainage system was installed within the ash fill material, discussed above. GZA investigated potential releases in the area of the stormwater drainage system in 2008. Four soil samples were collected from this area and were analyzed for VOCs, ETPH, total metals, and leachable metals. Historical soil analytical data obtained by GZA are included in **Appendix D**.

ETPH was reported at concentrations below the I/C DEC in two of the soil samples analyzed. Antimony was detected below the I/C DEC, and lead were reported at concentrations above the I/C DEC. None of the SPLP

results for metals analysis were above the applicable GB PMC for their respective compounds. VOCs were reported at concentrations below applicable criteria in two samples analyzed.

Based on sampling results from this area, soil impacts are present that will require remediation. Based on the nature and extent of the impacts, it appears that impacts are likely associated with the ash fill and are not the result of a release from the stormwater drainage system. As such, soil impacts in the area of the stormwater drainage system will be addressed with the planned remediation for the Ash Area.

## 4.0 Remediation Planning

The following sections summarize anticipated planning tasks to be performed prior to implementation of the proposed remedial action.

### 4.1 Safety, Health and the Environment (SH&E)

Weston & Sampson has prepared a Health and Safety Plan (HASP) in accordance with the requirements of 29 CFR 1910.120. Prior to initiating remediation activities, the existing HASP will be updated to include proposed remediation activities and all work will be conducted in accordance with the HASP. The HASP is intended for use by Weston & Sampson employees and Site visitors only. Any subcontractors performing work at the Site will be required to develop and follow their own HASP during all project activities. Remediation activities will be conducted by personnel with 40-hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations (HAZWOPER) training.

The HASP will include the following:

- Brief Site Description
- Site Safety Hazards
- Task Hazard Analyses (THAs)
- Chemical Compounds of Concern
- Project Personnel
- Site Training/Medical Surveillance Requirements
- Personnel Protective Equipment (PPE) Requirements
- Air Monitoring Requirements
- Decontamination Procedures
- Work Zones
- Remediation Derived Waste Disposal/Handling
- Emergency Response
- Special Operations Safety Requirements
- Emergency Resources
- Generic First Aid

### 4.2 Notification and Certification

In accordance with 40 CFR §761.61(a)(3)(E), this RAP serves as the Notification by MDL to the EPA Region 1 Coordinator and will be provided to state (CT DEEP) and local environmental officials (Town Health Department). Attached in **Appendix E** is a written certification, signed by a representative of MDL, the owner of the property where the cleanup site is located, indicating that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site are on file at the location designated in the certificate and are available for EPA inspection.

### 4.3 Permits and Approvals

The proposed remediation and redevelopment plans will require the following regulatory permits and/or approvals prior to commencing remediation.

- City of Bridgeport IWWA - An application for a permit to conduct a regulated activity within a wetland resource has been approved by the City of Bridgeport. This permit includes approval of the sedimentation and erosion controls for the project.
- CT DEEP Application for EC Variance - Part 2 of the application for approval of an Engineered Control Variance was submitted to CT DEEP. This RAP serves as an amendment to that application.
- EPA Region 1 Risk-Based Disposal Application – This report serves as the Notification to EPA of the planned activities. No remedial actions will be performed on the property until Approval from EPA has been received.
- CT DEEP Flood Management Certification – A portion of the funding for the remediation of the Ash Area is an Urban Sites Grant from the Department of Economic and Community Development. Therefore, an application for a flood management certification was submitted to CT DEEP and approved.
- Dewatering & Construction Wastewaters – An registration pursuant to the General Permit for Stormwater and Dewatering Wastewaters Associated with Construction Activities (Construction General Permit) was submitted to DEEP on May 16, 2016. This registration has been approved.

### 4.4 Public Notification

In accordance with the PTP and the RSRs, public notice for these activities is required. This public notice will address the requirements for the EC and for this RAP. The public notification process will be conducted in accordance with CGS 22a-134(a)(h)(2)(i) and 22a-133k-2(f)(2)(A)(iv). This process includes a requirement for public notice of remediation activities to be placed in a newspaper having substantial circulation in the area affected by the establishment, and notification to the Director of Public Health for the City. This public notice was published in the Connecticut Post on April 11, 2016. Additionally, a sign was posted at the main entrance to the site on Horace Street and April 11, 2016. The sign was six feet by four feet, clearly visible from the road, and include the name and telephone number of a person who can provide additional information about the project.

## 5.0 Soil Remedial Action Plan

The description of remediation for the Ash Area is broken into three phases:

- Site Preparation
- Remedial Excavations
- Site Restoration

Remedial areas within the Ash Area are also broken into three types of areas (as shown on C2 included in **Appendix A**):

- Consolidation Area – The designated area on the eastern side of the property where excavated soil and clean fill materials (i.e., crushed concrete and asphalt pavement) will be placed and compacted.
- Turf-Restoration Areas – The remainder of areas within the Ash Area remediation not currently covered with asphalt paving. These include the turf-covered area to the west of the wetlands and the intermittent stream, the turf area in the southeast corner of the property, and all areas currently covered with turf within the 100-year flood plain. No changes of elevations will be made within the 100-year flood plain.
- Pavement-Restoration Areas – All areas currently covered with asphalt paving will be restored with asphalt paving.

Limited site improvements, which consist of the installation of two new loading docks and a fork lift path, are included in the description below. These site improvements are required to maintain continued operation of the Site during the remediation.

The following describes how the three phases of the remedial work will be performed at the site within each of the area types.

### 5.1 Site Preparation

General site preparation will include site survey and marking of the remediation areas and installation of sediment and erosion controls. The remedial contractor will be required to survey and mark the limits of work including excavation areas. All site survey work will be sufficient to generate as-builts for the final work and for recording an Environmental Land Use Restriction on the property following the completion of work.

The locations for the installation of the sediment and erosion controls and details for their construction are included with the Contract Drawings included in **Appendix A**. The sediment and erosion controls drawing, C3, is the same as was provided to the CT DEEP with the Registration for the Construction General Permit. The inspection and maintenance of these controls will be performed as described in the General Permit Registration as will monitoring for water quality also described in the permit registration. The sediment and erosion controls will be installed by the remedial contractor prior to performing any work that will disturb soil at the site and then inspected by the remediation inspector to be provided by Weston & Sampson. The installation will either be approved or deficiencies noted and corrected prior to commencing remedial activities.

Woody vegetation that has not contacted PCB-impacted soil will be cleared prior to performing the remediation in a manner such that it won't contact. These clearing wastes will either be chipped and reused onsite (outside of the remediation area) or disposed offsite. The site will be mowed and the brush and grass wastes generated will be

removed and stored in a lined and covered rolloff container as described below for debris removed from the remediation area.

Debris noted within the Ash Area (e.g., approximately six automobile tires, one mattress, single piece of medical equipment, bottles, plastic wastes) will be removed and stored onsite in a lined and covered rolloff container for eventual disposal as a PCB Remediation Waste  $\geq 50$  mg/kg total PCBs at a chemical waste landfill to be determined by the remedial contractor. Woody vegetation that has contacted PCB-impacted soil and stumps remaining after the site has been cleared will be grubbed, loose soil removed, and then placed in the same rolloff containers as the debris for disposal at a chemical waste landfill. The remedial contractor will be responsible for “sizing” wastes and collecting sufficient analytical data so that these wastes may be accepted at the proposed landfill.

### **5.1.1 Consolidation Area**

After the consolidation areas has been cleaned of debris, cleared, and grubbed, the remaining soil will be prepared by grading and then compacted. The consolidation area will be graded as flat as possible to provide the best surface for placing and compacting additional materials in the area. After grading, the consolidation area will be compacted. A geotechnical engineer provided by Weston & Sampson will observe the compaction of the consolidation area and any areas that may require additional work or repair prior to placing and compacting additional materials will be identified and corrective measures performed. The remedial contractor shall survey and mark the limits of the area where materials are to be consolidated prior to placing any materials in the area.

### **5.1.2 Turf-Restoration Areas**

The above-grade portion of the stone wall (that not in contact with PCB-impacted soil) in the Concrete Patio Area will be demolished and the rock reused onsite. These areas will also be cleaned of debris, cleared and grubbed prior to performing excavations. No additional site preparation work will be performed in the turf-restoration areas.

### **5.1.3 Pavement-Restoration Areas**

Site lighting will be removed from the concrete posts on which they are mounted and stockpiled on site for reuse. Fencing in the parking lot, approximately 150 linear feet, will be cut above grade and the metal recycled. No additional site preparation work will be performed in the pavement-restoration areas.

## **5.2 Remedial Excavations and Consolidation**

Remedial excavations will be performed after the site has been fully prepared. The remedial contractor will be responsible for the sequencing of the work described below. However, the contractor will be required to excavate the three areas with PCBs  $>100$  mg/kg, as shown on **Figure C2** attached in **Appendix A**, and place those soils in the consolidation area first. This sequencing of the excavation work is being performed so that these materials may be placed at the base of the consolidation area.

### **5.2.1 Consolidation Area**

No excavation work will be performed in the consolidation areas except 1) around the perimeter so that the soil cap can be tied back into the existing grades or 2) in areas outside but abutting the consolidation area and within the 100-year flood plain. For these areas, the excavation and restoration activities will be performed in the same manner as those described for the turf-restoration areas. All surface elevations within the 100-year flood plain will be restored to current existing grades.

Excavated material and clean fill materials (i.e. crushed concrete and asphalt pavement) will be placed in the consolidation area in eight to twelve inch lifts. The lifts will be compacted and then tested to determine that the materials have been compacted to 92% of their modified Proctor Density as determined by ASTM D1557. The

compaction testing will be performed at a frequency of four tests per lift. The remedial contractor will be required to recompact areas not meeting the required density and these areas will be retested.

The remedial contractor will be required to perform interim surveys of the constructed mound in the consolidation area during performance of the remediation. These interim surveys will be performed to determine that construction of the mound is as designed and to evaluate the final volume of the placed and compacted excavation materials. The final elevation of the consolidation area may not match the design elevation because the compacted volume of the excavated materials may be less than their current in-place volumes. The surveys will determine that side slopes are maintained at a 3:1 maximum and that no final constructed grades are less than five percent (5%).

### 5.2.2 Turf-Restoration Areas

The single area with PCBs >100 mg/kg will be surveyed and marked in the field and then excavated first to the horizontal and vertical extent indicated on Figure C2 and placed in the consolidation area prior to performing other remedial excavations. This sequencing is being performed so that this soil may be placed at the base of the consolidation area.

The four-inch thick concrete pad in the Concrete Patio area, the six-inch thick concrete sidewalk, and concrete curbing around the perimeter of the pavement on the Site will be crushed before being placed and compacted in the consolidation areas. Soil excavation will then be performed to a depth of 1.5 feet below the designed surface of the surface cap. Each of the excavations will be graded, compacted and surveyed prior to placing of any backfill to determine that appropriate excavation depths have been achieved. The compaction of these areas will be inspected by a geotechnical engineer so that areas that may require corrective action prior to placing additional materials will be identified.

Surfaces of the building exposed by excavations will be washed to remove loose soil. No additional sampling or remediation of the building is proposed as a barrier will be constructed over the surface of the building that was previously in contact with the PCB-impacted soil as described in **Section 5.3**. The demarcation barrier will be extended up the wall of the building to prevent contact of the placed and compacted clean fill with the building.

### 5.2.3 Pavement-Restoration Area

The two areas with PCBs >100 mg/kg will be surveyed and marked and then excavated first to the horizontal and vertical extents indicated on **Figure C2** and placed in the consolidation area prior to performing other remedial excavations. This sequencing is being performed so that this soil may be placed at the base of the consolidation area.

Excavation in the pavement area will be performed in three phases to allow for the continued operation of the facility while the remediation is being performed. Continued truck access to loading docks at the facility is required at all times and additional loading docks will be installed as shown on **Figure C3** with additional details on **Figure C8** attached in **Appendix A**. The exact areas to be included in each of the phases will be determined by the remedial contractor but the phasing will be generally performed as follows:

The northeast corner of the parking lot will be remediated first. This area will not extend out to the southern boundary of the site to leave a corridor to transport asphalt and soil excavated from the western portion of the parking lot to the consolidation area. The remediation of the northeast corner of the parking lot will include the following work:

- Soil along the southern portion of the building will be excavated to a minimum depth of 1.5 feet below the current surface. Additional soil excavation will be performed at the location of the two new loading docks to a depth to allow for construction of the paved surface to the building and for installation of drainage piping. Construction of the loading dock will also require that the water line that runs along this section of

the building be rerouted to maintain sufficient cover. All of the soil excavated will be transported to the consolidation area for disposal onsite.

- A concrete transformer pad, 4 feet wide, 8 feet long, and 8 inches thick is present in the soil area on the southern portion of the building. Soil will be excavated to the required depth around the perimeter of this pad, the exposed concrete washed, and then the area will be restored as described in **Section 5.3**.
- The concrete sidewalk in this area will be demolished as part of the site remediation. The sidewalk will not be restored and turf will be extended to the current limits of asphalt. The turf cap in the area of the concrete sidewalk will be constructed in the same manner as the turf cap in other areas of the site.
- Asphalt pavement will be crushed and transported to the consolidation area and asphalt subbase will be removed to a total depth to allow for construction of the one foot thick cap in the paved areas. The existing subbase will be graded following excavation.
- Manholes and catch basins in the remediation area will be maintained. The exposed areas of concrete at these locations will be washed to remove all loose soil prior to restoration.

The western portion of the parking lot will be remediated after the two new loading docks have been constructed and are ready for use as the three loading docks in this area cannot be used during this portion of the remediation. The asphalt paving and subbase will be removed as described above. Manholes and catch basins will also be maintained as described above.

Following complete restoration of the western portion of the parking lot so that access to the loading docks is available, the remaining southeast corner of the paved area will be excavated.

### 5.3 Site Restoration

The same demarcation barrier will be installed following the removal or consolidation of PCB-impacted soil throughout the Site. This barrier will consist of orange polypropylene mesh fencing placed beneath a twelve ounce per square yard (12 oz./SY) geotextile. The geotextile will be sewn at the seams so that it forms a continuous layer and then secured to the subsurface with metal u-shaped staples. The remedial contractor shall submit the material to be used and the size of the staples of the frequency of installation will be that recommended by the manufacturer. For areas where the demarcation barrier is installed on 3:1 slopes, it will be anchored in trenches at the top and base of the slope.

Silt traps installed at manholes and catch basins in the paved area will be removed after asphalt paving has been completed in the surrounding area. Silt fence and other sediment and erosion controls installed around the areas restored as turf will be maintained until grass has been sufficiently established to stabilize the topsoil. With construction to occur during the summer of 2016, it is anticipated that the silt fence will remain in place until the following year.

No slopes greater than 3:1 (H:V) will be constructed. The minimum constructed slope at the top of the consolidation areas will be five percent.

#### 5.3.1 Consolidation Area

Following the completion of placing and compacting PCB-impacted materials in the consolidation areas, the following activities will be performed:

- Clean backfill material within three percent of the optimum moisture content will be placed and compacted to 92 percent of the material's maximum dry density as determined by ASTM D1557. Prior to use at the Site, the backfill will be tested to confirm that it meets RSR criteria and also to confirm that it contains less than 10 percent fines and it is free of debris and organics. The initial layer of placed and compacted clean backfill will be a minimum of six-inches thick, determined by measuring the thickness of the layer in the field.
- The demarcation barrier will be installed as described above.

- Another six-inch thick layer of clean backfill material will be placed and compacted as described above.
- Six inches of topsoil will be placed and compacted.
  - For slopes that are constructed with 3:1 (H:V), a turf-reinforcement mat (TRM) will be installed and topsoil worked into the mat manually and then seeded. The TRM will be installed as shown on the Contract Drawings provided in **Appendix A** and will be anchored in trenches at the top and base of the slopes. The remedial contractor shall select the TRM to be used and shall anchor the material using metal staples of the size and frequency specified by the manufacturer.
  - For slopes that are less than 3:1 (H:V), the topsoil will be seeded after it is placed.

A perimeter drainage swale will be constructed around the perimeter of the consolidation area as shown on the Contract Drawings provided in **Appendix A**. The drainage swale has been designed to handle runoff from a 100-year storm and the stone within the swale is of sufficient size to resist water flows due to this level storm. Water collected in the drainage swale will drain to catch basins installed within the swale and then piped to a sedimentation/retention structure as shown on the Contract Drawings. Stormwater retention has been designed to maintain peak stormwater runoff from the site at current levels.

Three benchmarks will be established on the top surface of the consolidation area. The elevations of these benchmarks will be evaluated as part of the Maintenance and Monitoring plan for the site and the data reviewed to evaluate settling of soil within the consolidation areas.

### 5.3.2 Turf-Restoration Areas

For those areas outside the consolidation area that will be completed with turf, the soil cap will be constructed as described above for consolidation areas. Ground surfaces will be restored to current elevations and TRMs will not be required in these areas.

The turf-restoration area in the southeast corner of the site has been redesigned to facilitate stormwater drainage and to limit future erosion. The final surface will be restored with five percent grades from a central high point in the area. However, grades within the 100-year flood plain will not be modified from those currently existing. Material excavated from the perimeter of this area will be consolidated and compacted near the center of the area so that these five percent grades can be constructed with the 1.5 foot thick soil cap.

A fork-lift access ramp will be constructed in the turf area to the west of the wetlands. The cap thickness will be the same as the surrounding area, 1.5 feet, but the surface will be completed with six inches of suitable subbase materials and concrete instead of topsoil. A vehicle access road will also be constructed as shown on the Contract Drawings so that vehicles may access the solar panel areas. The cap thickness will be the same as the surrounding area, 1.5 feet, but the surface will be completed with six inches of stone underlain by a geotextile fabric instead of topsoil.

### 5.3.3 Pavement-Restoration Areas

Prior to placing asphalt subbase, the excavation areas will be graded as needed and the demarcation barrier installed. Clean subbase material within three percent of the optimum moisture content will be then placed and compacted to 92 percent of the material's maximum dry density as determined by ASTM D1557. Prior to use at the Site, the clean subbase material will be tested to determine that it meets RSR criteria and also to determine that it contains less than 10 percent fines, is well graded, and it is free of debris and organics. This layer will be a minimum of seven-inches thick, which thickness will be determined by measuring the thickness of the layer in the field. A minimum of five inches of asphalt pavement will be placed in two layers, three inches of Class 1 and then two inches of Class 2 pavement.

At the loading dock, twelve inches of subbase will be placed beneath the asphalt paving, to better support the weight of the truck and equipment used to load or unload the trailers.

## 5.4 Waste Management

The proposed remedial actions have been designed such that the majority of remediation wastes (excavated soils) and clean fill materials (crushed concrete and asphalt pavement) will remain on-site in the consolidation area. However, solid waste consisting of debris removed from the site and grubbing wastes, as well as personal protective equipment, decontamination waste, and erosion control materials used during remediation activities will require disposal when the work is complete. Waste material generated during the remediation will be disposed of in accordance with applicable regulations contained in 40 CFR 760.61(a)(5). The following presents a summary of the anticipated waste management process:

1. Solid waste and grubbing wastes will be characterized to the extent required by the waste profile for the selected landfill and disposed at a chemical waste landfill as PCB Remediation Waste  $\geq 50$  mg/kg.
2. All decontamination media will be collected, characterized, and transported for off-site disposal at a facility permitted to accept these wastes. Liquid materials will be segregated from solid materials and will be temporarily containerized on-site subsequent to decontamination at an off-site facility.
3. Solid materials (plastic sheeting, straw bales, personal protective equipment, etc.) used during the remediation activities will be segregated from other waste streams. If solid materials come into contact with contaminated materials, they will be disposed in accordance with §761.61(a)(v)(A)(1).

Prior to being transported off-site, all wastes will be properly characterized and profiled for disposal, as necessary. If any hazardous waste were generated, it would be disposed of at a facility permitted to accept such wastes.

Remediation waste management, transportation, and removal from the Site will be documented by manifest or bill of lading. MDL will be named as the generator of the waste, and a representative for MDL will sign any required waste profile forms and/or manifests. The waste disposal contractor will prepare disposal manifests or bills of lading and documentation for MDL's use. The disposal documentation will be included in the Remedial Action Report (RAR) prepared following completion of the work described herein.

## 5.5 Dust Control and Air Monitoring

Dust control monitoring and mitigation measures will be employed during remediation activities to reduce the potential for COCs to migrate via dust and wind-blown emissions. An air monitoring plan will be prepared by the selected contractor prior to commencing remediation activities. This plan will be reviewed by Weston & Sampson for completeness prior to implementation of the work. The selected contractor will conduct air and dust monitoring in accordance with project health and safety requirements and the City of Bridgeport ordinance.

If air and dust monitoring indicates that controls are required, water will be used to mitigate airborne dust emissions. Water will also be used, as needed, in high-traffic areas to minimize dust emissions caused by vehicular traffic. Water application will be limited to the amount needed to control dust to inhibit runoff. A fire hydrant is located near the northeast corner of the building, in close proximity to the remediation area, and can be used as a water source. A permit to use the hydrant will be obtained from Aquarion Water Company before using the hydrant.

## 5.6 Decontamination

PCBs have been identified as the primary COC at the Site. As such, decontamination procedures are subject to the regulations set forth in 40 CFR Part 761.79. Decontamination of on-site heavy equipment (e.g., excavator, backhoe, compactor) will be performed as necessary to minimize the potential spreading of contamination and prior to the equipment leaving the site.

All decontamination of equipment will occur within a designated decontamination zone. Parts of equipment that directly contact impacted fill materials (e.g., excavator buckets and vehicle treads and tires) will be decontaminated in accordance with §761.79(c)(2). Brushing, high pressure water, and/or a steam cleaning will be used for general

equipment decontamination of equipment surfaces that do not contact impacted media. The decontamination zone will include polyethylene sheeting and will be constructed such that all decontamination wastewater is contained for subsequent collection. All collected liquid will be transferred into closed lid, Department of Transportation-rated, 55-gallon drums. Drums will be temporarily stored on-site, the aqueous wastes contained within characterized, and then transported offsite for decontamination or disposal at an appropriate off-site facility.

## **5.7 Future Site Use Plans**

Upon completion of construction of the engineered barrier and site restoration activities, MDL plans to construct a solar array in the consolidation area. The cap covering the consolidation areas will be designed to facilitate and maximize the installation of a solar array. The solar array will consist of multiple individual solar panels placed in a south-facing direction. Each panel will be placed on a concrete ballast, which will sit on top of the constructed cap surface. All electric conduits necessary to operate the solar array will be installed above ground. No subsurface conduits will be installed during the construction of the solar array. Therefore, no disturbance of the constructed engineered barrier will occur during installation of the solar array. Access to these areas will be minimal and only as needed for maintenance of the solar array, thereby meeting the definition of a low occupancy area found at 40 CFR 761.3.

## **5.8 Site Security**

The perimeter of the Site currently is surrounded by a six-foot high chain link fence. Snow fencing will be used at the project limits to provide additional security during remediation activities. Signage as required by Conn. Gen. Stat. section 22a-134a(i) will be used to alert the public to the Site conditions, the nature of the project activities, and to provide contact information.

## **5.9 Demobilization**

All contractor equipment, un-used materials, and wastes will be removed from the Site following completion of remediation activities and decontamination, as described in Section 5.6.

## **5.10 Environmental Land Use Restriction**

Upon completion of material consolidation and construction of the EC, an ELUR will be recorded on the land records for the City of Bridgeport prohibiting any potential future activities that would disturb the engineered control or the remaining impacted soil and to require the maintenance of the engineered control, in accordance with Conn. Gen. Stat. section 22a-133o and RCSA 22a-133q-1. Prior to recording the ELUR, a notice of intent to record an ELUR will be published in a newspaper of general circulation in the vicinity of the Site, and the proposed ELUR will be submitted the Commissioner of CT DEEP for review and approval.

Prior to recording the ELUR on the municipal land records, the owner of the subject parcel will submit to the Commissioner for his review and written approval: (1) copies of each subordination agreement, properly executed, required under Section 22a-133o of the General Statutes; or (2) a certificate of title indicating that each person holding an interest in such parcel or any part thereof, including without limitation each mortgagee, lessee, lienor, and encumbrancer, has irrevocably subordinated such interest to the ELUR.

After the Commissioner's approval of the proposed declaration of ELUR and the proposed decision document, MDL will record the approved ELUR and supporting documents on the land records of the City of Bridgeport.

In accordance with RCSA Section 22a-133q-1(j), after the ELUR has been recorded, MDL will send by certified mail, return receipt requested, a copy of the ELUR to: (1) the chief administrative officer of the City of Bridgeport, (2) the chairman of the municipal planning, zoning, or planning and zoning commission, (3) the local Director of Health, and (4) any person who submitted comments on the ELUR.

## 6.0 Sampling and Analysis Plan

The sampling and analysis plan associated with the RAP is summarized below. No verification samples are proposed during the performance of remediation activities as the construction of the engineered control will complete the remediation of those areas where the control has been constructed. However, waste characterization will be performed for materials to be disposed and materials brought to the Site for backfilling/restoration will be sampled, as described below.

### 6.1 Clean Fill Sampling

Materials used for backfill, common borrow and topsoil, will be sampled and approved prior to delivery to the site. Representative samples of the material will be collected and analyzed for the parameters listed in **Section 7.3**. The sampling frequency for clean fill materials will be at least one sample per every 2,000 cubic yards of each type of material (e.g., topsoil, common borrow). Composite samples will be used to characterize these materials and these samples will be submitted under chain of custody for laboratory analysis. As an alternative, the suppliers may issue recent analyses for materials from the same source. All data will be reviewed prior to delivery of off-site materials to the Site.

Modified Proctor Density curves will also be required for each source backfill materials. These data will allow for determination of the extent of the compaction of these materials when placed on the site.

### 6.2 Waste Characterization Sampling

Waste generated during remediation activities will be disposed of as described in Section 5.3. Waste characterization sampling and analysis will be conducted in accordance with disposal facility requirements. Waste characterization sampling data will be included in the Remedial Action Report to be prepared for the site.

### 6.3 Laboratory Analysis

All proposed laboratory analyses will be performed by a laboratory certified by the State of Connecticut Department of Public Health (CTDPH) to perform such analyses. Detection limits will be selected to be below the applicable RSR and/or disposal criteria. The standard operating procedure (SOP) laboratory protocols specific to the laboratory subcontractor will be followed.

All fill materials brought onto the site will be tested for:

- Volatile Organic Chemicals by EPA Method 8260;
- Semivolatile Organic Chemicals by EPA Method 8270;
- PCBs by EPA Method 8082;
- Pesticides by EPA Method 8081;
- Herbicides by EPA Method 8151;
- TPH by the CT DEEP Extractable Total Petroleum Hydrocarbons Method; and
- RSR Metals.

Fill materials will be considered clean and appropriate for use in the remedial project if the concentrations of chemicals detected do not exceed 50% of the IC DEC and do not exceed the GB PMC. All laboratory analytical data will be generated following the reasonable confidence protocol and the QA/QC for the data will be evaluated to determine that it is adequate to determine that the backfill materials are suitable for use at the site.

#### 6.4 Quality Assurance/Quality Control

The analytical laboratory will be required to perform the internal quality control procedures that are specified in the analytical methods. These include, but are not limited to:

- Blanks – The laboratory will analyze method blanks prepared and analyzed with each set of samples. These are a check of the accuracy of the system and indicate if there are positive biases.
- Calibration Checks – These are standards, generally from a different source than the calibration standards that are analyzed along with the samples. The purpose of the calibration checks is to determine if the analytical equipment is functioning accurately.

Field Quality Assurance/Quality Control (QA/QC) samples will be submitted along with the laboratory samples. Based on the preliminary sampling plan for samples of clean fill, the QA/QC requirements include, but are not limited to:

- Field Duplicate – At least one field duplicate sample will be collected and submitted to the laboratory for every 10 samples submitted for analysis.
- Trip Blank – One trip blank to be analyzed for VOCs by USEPA Method 8260 only will be included in each cooler that is sent to the laboratory.

Upon receipt of the laboratory data, a review of the data will be performed to evaluate its usability. The laboratory analytical data will be reviewed for consistency with the CT DEEP Reasonable Confidence Protocols (RCP) and the Data Quality Assessment (DQA) and Data Usability Evaluation Process (DUE). This will include checking of such items as:

- Holding times,
- Field and laboratory blanks,
- Field and laboratory duplicates,
- Surrogate recoveries, if applicable,
- Calibration checks,
- Spike recoveries, if applicable, and
- Analytical method detection limits (MDLs).

Items such as GC/MS tuning, initial calibrations, calculations, and raw data will be checked by the laboratory.

All laboratory analytical work will be performed in accordance with the CT DEEP RCP and/or the designated disposal facility. In addition, the SOP laboratory protocols for the project laboratory subcontractor will be followed. This Data Quality Assessment and Data Usability Evaluation will be documented in the final remedial action report to be prepared for the remediation project.

## 7.0 Documentation and Reporting

Weston & Sampson will oversee remediation activities and prepare and maintain a record of the activities performed. Weston & Sampson will document that the project is completed in accordance with the requirements of this RAP, CT DEEP and USEPA requirements, and generally accepted industry/engineering standards.

### 7.1 Field Documentation

The following list identifies the specific documentation and reporting requirements that will be required for this project.

- Maintaining an accounting of materials excavated and consolidated on-site, including documentation that soil with >100 mg/kg total PCBs have been excavated to the vertical and horizontal limits designated and placed at the base of the consolidation area;
- Photographic documentation of executed field activities, and other pertinent observations;
- Results for compaction testing of consolidated materials;
- Manifests and any other records related to off-site disposal of any wastes disposed of during the remediation;
- Documenting and reporting of any spills, leaks, or other discharges occurring at the site and remedial actions taken to address these occurrences;
- Documenting and reporting of any disruption/damage to utility structures;
- Documenting that erosion control and site security measures are adequately maintained throughout the project;
- Maintaining excavation and consolidation documentation per excavation area;
- Documenting decontamination prior to demobilization; and
- Performing a Class A2 post-construction survey to document the final elevation contours within the remediation areas and limits of the capped areas.

### 7.2 Post-Remediation Reporting

Following completion of remediation activities, a Remedial Action Report (RAR) will be prepared to document remediation activities. The report will describe the completed work at the site, and will contain the following specific items:

- Project narrative;
- Record drawing(s) (A-2 Survey) showing the vertical and horizontal limits of the ash excavation and consolidation areas, and the final grades;
- Waste disposal documentation (manifests, bills-of-lading, certificates of disposal, etc.);
- Documentation of all materials incorporated into the project (backfill, topsoil, etc.); and
- Photographs of remediation activities.

The RAR will also include recommendations for future actions based upon observations made during construction and a description of the ELUR to be recorded on the land records for the Site.

## 8.0 Post-Remediation Conceptual Site Model

Upon completion of these soil remediation activities, the significant migration pathways described in this remedial plan for the Ash Area will be eliminated. These include the potential direct exposure migration pathways of dermal contact, ingestion, and inhalation. The planned soil excavation and engineered soil cap construction will eliminate these pathways and risks to human health associated with the Ash Area will have been controlled. The pollutant mobility pathway has been shown to be incomplete through previous groundwater sampling and analysis.

Monitoring and maintenance of the soil cap and groundwater will be performed as described in **Section 10**. This continued inspection and repair of the constructed barrier will allow for corrective measures to be performed if any degradation is observed and maintain the effectiveness of the cap in protecting human health and the environment.

## **9.0 Monitoring and Maintenance Plan**

The purpose of the Monitoring and Maintenance Plan (MMP) is to monitor the integrity and performance of the engineered control as constructed, perform repairs if needed, and to verify that groundwater quality meets applicable criteria. This MMP identifies responsibilities for post-remediation monitoring and maintenance, the proposed post-remediation use of the Site, requirements for inspection and routine maintenance, groundwater monitoring, reporting, and provisions for posting a post-closure surety. The draft MMP will be submitted with the RAR for review and comment. The MMP will then be finalized and implemented. Additional detail regarding these items is provided in the following subsections.

### **9.1 Responsibilities for Post-Closure Monitoring and Maintenance**

MDL is responsible for post-remediation monitoring and maintenance of the constructed engineered controls following completion of the remediation construction activities for the duration of the time that the engineered control is in place. In accordance with the requirements described within §761.65(g) and the CT DEEP EC Variance Guidance Document (CT DEEP, November 2010), MDL is required to provide a financial mechanism to allow for the constructed engineered controls to be maintained by the EPA and/or CT DEEP in the event that MDL cannot meet the maintenance and monitoring requirements specified in the MMP at some point in the future. The financial surety in this case will be established in accordance with the requirements as stated in §761.65(g) taking into account requirements of CT DEEP.

A financial assurance mechanism will be selected at the time construction is completed and presented to EPA and CT DEEP for approval as part of the MMP to be submitted with the RAR. This mechanism will be one of those allowed under §761.65(g) which includes trust fund, surety bond, letter of credit, insurance, or a combination of these mechanisms. The options that allow for a corporate guarantee following the performance of the prescribed financial test will not be proposed. A cost estimate for the cost of 30 years of EC maintenance and monitoring in accordance with the requirements of §261.142 will be presented in the MMP.

### **9.2 Intended Post-Closure Use of the Site**

MDL proposes constructing a solar panel array on the constructed EC surface on the areas on the east side of the property including the consolidation area and the southeast corner. These areas will be completed with turf and will be graded to facilitate construction of a southerly facing solar array. The solar panel array will be constructed entirely above-ground and will not require disturbance of the constructed engineered control.

Access to the consolidation area will be maintained via gravel access roads. The existing permanent fencing encompassing the property boundary will remain in place to restrict access to the site. New signs identifying the site will be installed. The signs will state the owner and associated contact information, authorized personnel, and required safety precautions.

### **9.3 Inspection and Maintenance of Environmental Control Systems**

The environmental control systems that require inspection, maintenance and/or sampling include the cover system, stormwater control system, and groundwater monitoring wells. An experienced engineer or landfill specialist will perform the inspections on a semiannual basis (spring and fall) for the duration of time that the engineered controls

are in place. Inspection events will typically be scheduled and conducted in conjunction with groundwater monitoring events.

The inspections will consist of a general inspection of the condition of the cap materials, and will include the following observations of conditions and measurements:

- General condition of the turf cover, noting the presence of bare patches, eroded areas, woody growth, or areas of apparent subsidence;
- Survey of benchmarks established on the top surface of the cap and evaluation versus previously collected data on the elevation of the benchmarks;
- The presence or absence of animal burrows or other holes in the earthen cap areas;
- Significant cracks in the pavement cap areas;
- Condition and the apparent functionality of stormwater control and drainage structures;
- Evidence of trespass at the site; and
- Condition of the monitoring wells.

Conditions observed during the inspections will be documented in writing and photographically. Documentation forms and associated checklists will be provided in the MMP. These forms will facilitate the inspection and to provide a mechanism for consistent documentation of observations. Each major item will be noted as acceptable or unacceptable. Unacceptable items will require action and a schedule for correction.

## 9.4 Maintenance of the EC

At a minimum, the grass-covered areas of the EC will be mowed to prevent the development of woody vegetation that could compromise the integrity of the cap and that will also enable clear observation of the cap during inspection events. These mowing events will be performed prior to the fall inspection event and once during the early summer. Additional mowing will be performed as needed to prevent excessive grass growth in the area of the solar panels.

Repair of the cap will be performed on an as-needed basis and may include activities such as:

- Removal of burrowing animals and filling of animal burrows;
- Sealing of cracks in asphalt or repaving if the asphalt is failing;
- Filling of areas of subsidence; and
- Reseeding of area where the turf cover is not sufficiently well established.

More extensive maintenance would also be performed, if necessary and includes activities such as repaving and repairs of consolidation areas that may exhibit excessive subsidence. The financial surety discussed in **Section 10.2** will include provisions these potential maintenance events.

## 9.5 Groundwater Quality Monitoring

Because the purpose of the engineered control is to prevent human exposure, rather than to prevent stormwater infiltration, groundwater monitoring is not required for the engineered control. Rather, the purpose of the groundwater monitoring is to develop an adequate dataset to verify compliance with the GB PMC for materials left in place and to demonstrate compliance with applicable groundwater criteria. When verification of these is complete, it is anticipated that groundwater monitoring will cease.

In the first two years following remediation, a total of four groundwater monitoring events will be performed (one in each quarter) to evaluate seasonal variations. Samples will be collected and analyzed for metals, ETPH, PCBs, and PAHs.

Experienced field technicians will perform the groundwater monitoring events. Groundwater monitoring wells will be inspected prior to each monitoring event. The field technicians will complete the Maintenance and Inspection Form for Groundwater Monitoring Activities to document the condition of the monitoring points and potential required repairs. The completed forms along with the sampling results will be included in the MMP Report to be submitted annually.

Because the most of the current groundwater monitoring system will be abandoned during remedial construction at the site, a new groundwater monitoring well system will be installed following the completion of construction. The proposed locations for new wells and their construction will be included in the MMP to be submitted with the RAR following the completion of remedial construction.

### **9.5.1 Field Parameters**

Prior to sample collection groundwater levels will be gauged in each well proposed to be sampled as part of this program. The water levels will be used to evaluate groundwater flow conditions in the vicinity of the Site. Groundwater samples will be collected using low-flow sampling techniques in accordance with EPA Region I SOP #GW 001 Revision 3, dated January 19, 2010.

Water quality parameters will be measured during purging to ensure that representative formation water is obtained for analytical testing. These field parameters shall include pH, oxidation-reduction potential, specific conductance, temperature, dissolved oxygen, and turbidity.

### **9.5.2 Data Analysis and Evaluation**

Analytical data will be generated in accordance with the Connecticut RCPs. Analytical results will be compiled in a database that Weston & Sampson maintains for the Site. The data will then be compared to regulatory standards and previous sampling results and analyzed for water quality trends. Results of these analyses will be documented in the appropriate MMP Report.

### **9.5.3 Quality Assurance/Quality Control**

QA/QC procedures will be performed in accordance with Weston & Sampson SOPs for field procedures and with applicable sample collection requirements of the Connecticut RCP related to sample glassware, preservation, and holding time requirements.

Prior to sampling any non-dedicated and non-disposable monitoring and sample collection equipment will be properly decontaminated, as necessary. Cleaning of equipment is performed to prevent cross-contamination between samples and to maintain a clean working environment for field personnel. Prior to use in the field, monitoring equipment will be calibrated according to manufacturer guidelines. Calibration parameters and results will be recorded on the appropriate form or in a dedicated field logbook.

QA/QC samples will include field blanks and duplicate samples. Samples will be submitted to a Connecticut certified analytical laboratory. The sampler will indicate on the Chain of Custody documentation that all analyses are to be performed in accordance with Connecticut RCP requirements.

## 9.6 Reporting

An annual MMP Report will be prepared and submitted to the EPA and CT DEEP to document the inspection and sampling events for the duration of time that the engineered controls are in place. The MMP Reports will include information as required. A draft outline for the MMP Reports is provided below:

- Introduction,
- Summary of Inspection Activities, Survey Measurements, and Findings,
- Summary of Maintenance Activities,
- Summary of Monitoring Activities,
- Analytical results,
- Data trends, as applicable, and
- Conclusions and Recommendations.

## 10.0 Schedule

The anticipated schedule to implement the proposed remedial actions described in this RAP is provided below. The anticipated schedule is dependent on timeliness of approvals for required permits. The Stormwater General Permit with SPCP was submitted to CT DEEP for review on the date listed.

Task	Anticipated Schedule
Registration for Stormwater General Permit with SPCP Submitted	Registration Approved
Submit Remedial Action Plan	May 17, 2016
Provide Public Notice of Remediation	April 11, 2016 (45-day public comment period ends May 27 <sup>th</sup> )
Secure Remedial Contractor through Bid Process	May to June 2016
Remedial Construction	June through August 2016 <sup>1</sup>
Solar Panel Construction	September through October 2016
Final Cap Inspection and Repairs	October 2016
Submit RAR to EPA	December 2016
Implement long-term monitoring and reporting program	December 2016
Prepare ELUR and Submit to CT DEEP	January 2017
Notes: <sup>1</sup> – Remedial construction will not be initiated until approval of the remedial plan from EPA and CT DEEP has been received.	

## 11.0 References

- State of Connecticut, Department of Energy and Environmental Protection. *Remediation Standard Regulations*. January, 1996.
- State of Connecticut, Department of Energy and Environmental Protection. *Site Characterization Guidance Document*. September 2007. (Revised December 2010).
- State of Connecticut. Department of Energy and Environmental Protection. Bureau of Water Protection and Land Reuse, Remediation Division. *Guidance Document Engineered Controls pursuant to Section 22a-133k-2(f) of the Connecticut Remediation Standard Regulations*. February 2009. (Revised November 2010).
- Haley & Aldrich, Inc. *Report on Environmental Site Assessment*. 2002.
- Haley & Aldrich, Inc. *Report on Limited Phase III and Supplemental Limited Phase III Environmental Site Assessment*. 2003.
- GZA GeoEnvironmental, Inc. *Phase I and Phase II Environmental Site Assessment*. 2008.
- Buchman, M.F., 2008. *NOAA Screening Quick Reference Tables, NOAA OR&R Report 08-1*, Seattle, WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

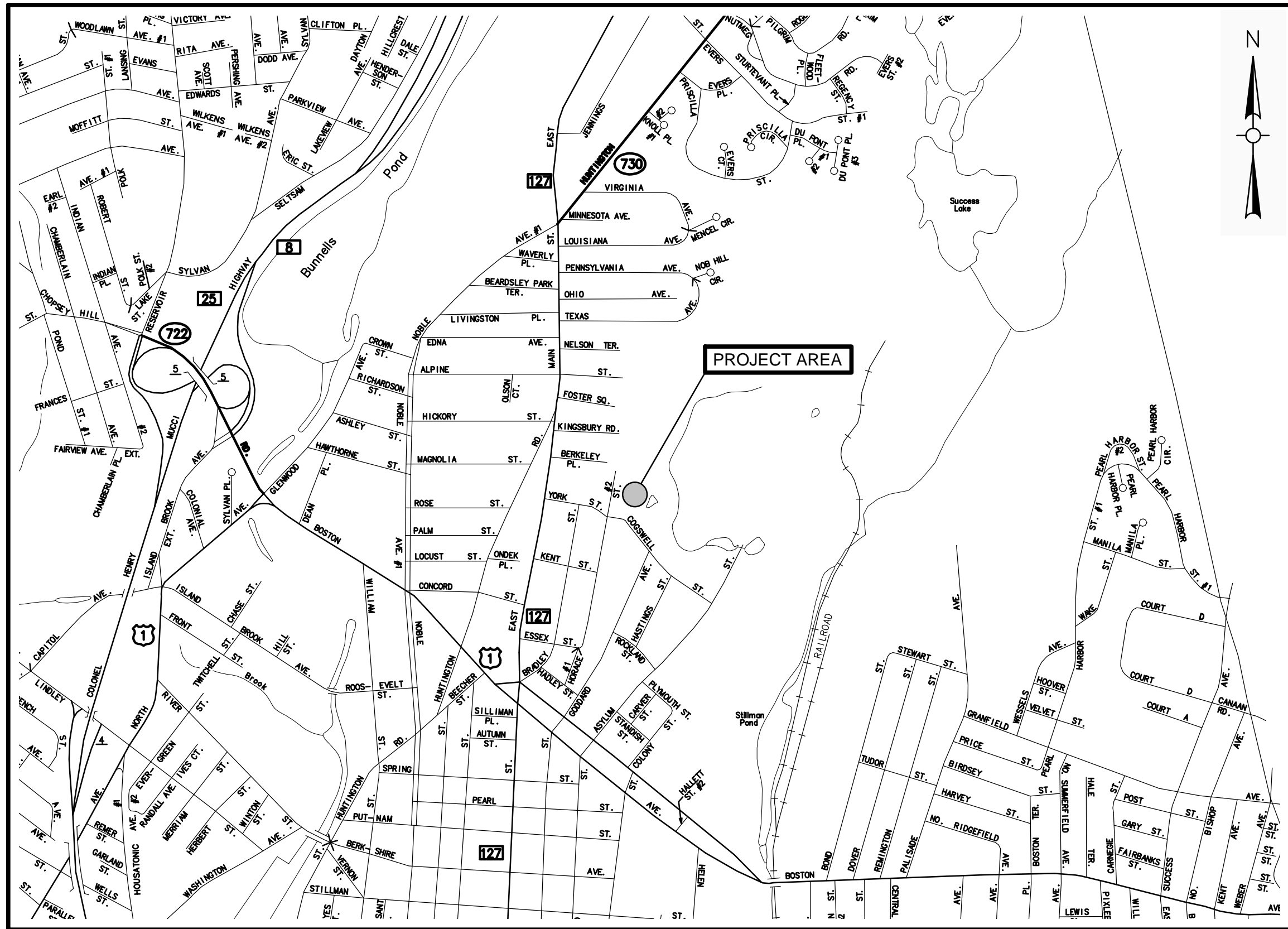
## Table

**Table 1**  
**Summary of Soil Dioxin, Furan, and PCB Analytical Results**  
**Ash Area Remedial Plan**  
**Bridgeport, CT**

Sample ID Analysis Type Sample Date	WS-G158B Total 11/17/2015			WS-G158B SPLP 11/17/2015			WS-G232C Total 11/17/2015			WS-G232C SPLP 11/17/2015		
Analyte	ng/kg	EMPC	Flag	pg/L	EMPC	Flag	ng/kg	EMPC	Flag	pg/L	EMPC	Flag
2,3,7,8-TCDD	2.6			<10			<10			<10		
Total TCDD	42			<10			68			<10		
1,2,3,7,8-PeCDD	6.5			<51			<52			<51		
Total PeCDD	56			<51			<52			<51		
1,2,3,4,7,8-HxCDD	4.8			<51			<52			<51		
1,2,3,6,7,8-HxCDD	18			<51			84			<51		
1,2,3,7,8,9-HxCDD	13			<51			<52			<51		
Total HxCDD	170			<51			630			<51		
1,2,3,4,6,7,8-HpCDD	270			<51			1000			<51		
Total HpCDD	500			<51			1900			<51		
Total OCDD	2200			<100			6000			<100		
Total Dioxins	3283			ND			9682			ND		
2,3,7,8-TCDF	450			<10			1800			<10		
Total TCDF	3600			<10			2			<10		
1,2,3,7,8-PeCDF	280			<51			530			<51		
2,3,4,7,8-PeCDF	310			<51			1300			<51		
Total PeCDF	3100			<51			6400			<51		
1,2,3,4,7,8-HxCDF	430			<51			3700			<51		
1,2,3,6,7,8-HxCDF	250			<51			1200			<51		
2,3,4,6,7,8-HxCDF	69			<51			670			<51		
1,2,3,7,8,9-HxCDF	89			<51			1200			<51		
Total HxCDF	1900			<51			13000			<51		
1,2,3,4,6,7,8-HpCDF	370			<51			2700			<51		
1,2,3,4,7,8,9-HpCDF	120			<51			1500			<51		
Total HpCDF	790			<51			7200			<51		
Total OCDF	260			<100			2000			<100		
Total Furans	12018			ND			43202			ND		
TEQ	250			0			1300			0		
	mg/kg						mg/kg					
Total PCBs	56			NA			1300			NA		

**Notes:** TCDF = tetrachlorodibenzofuran  
TCDD = tetrachlorodibenzodioxin  
PeCDF = pentachlorodibenzofuran  
PeCDD = pentachlorodibenzodioxin  
HxCDF = hexachlorodibenzofuran  
HxCDD = hexachlorodibenzodioxin  
HpCDF = heptachlorodibenzofuran  
HpCDD = heptachlorodibenzodioxin  
OCDF = octachlorodibenzofuran  
OCDD = octachlorodibenzodioxin  
EMPC = estimated maximum possible concentration  
TEQ - 2,3,7,8-TCDD Toxicity Equivalence (calculated using 2005 WHO Factors)  
SPLP - Synthetic Precipitation Leachate Procedure

**Appendix A.**  
**Contract Drawings**



LOCATION MAP  
SCALE: 1"=1000'

DRAWING INDEX

SHEET NO.	DRAWING NO.	TITLE	CHECKED BY
1	--	COVER SHEET	-
2	G-1	ABBREVIATIONS AND NOTES	J.S.P.
3	C-1	EXISTING CONDITIONS PLAN	J.S.P.
4	C-2	CONCEPTUAL REMEDIATION PLAN	M.A.B.
5	C-3	EROSION AND SEDIMENT CONTROL PLAN	J.S.P.
6	C-4	PROPOSED FINAL GRADING PLAN ASH CONSOLIDATION AREA	M.A.B./J.S.P.
7	C-5	SECTION 1	M.A.B.
8	C-6	DETAILS 1	M.A.B.
9	C-7	DETAILS 2	M.A.B.
10	C-8	DETAILS 3	M.A.B.
11	C-9	LOADING DOCK AND FORK LIFT ACCESS PATH	M.A.B.
12	S-1	STRUCTURAL NOTES AND DETAILS	P.J.G.

MDL REALTY, LLC.

REMEDIAL DESIGN ASH CONSOLIDATION  
CLOSURE CONSTRUCTION

380 HORACE STREET  
BRIDGEPORT, CONNECTICUT

CONSTRUCTION DOCUMENTS  
REVISED 5/17/2016

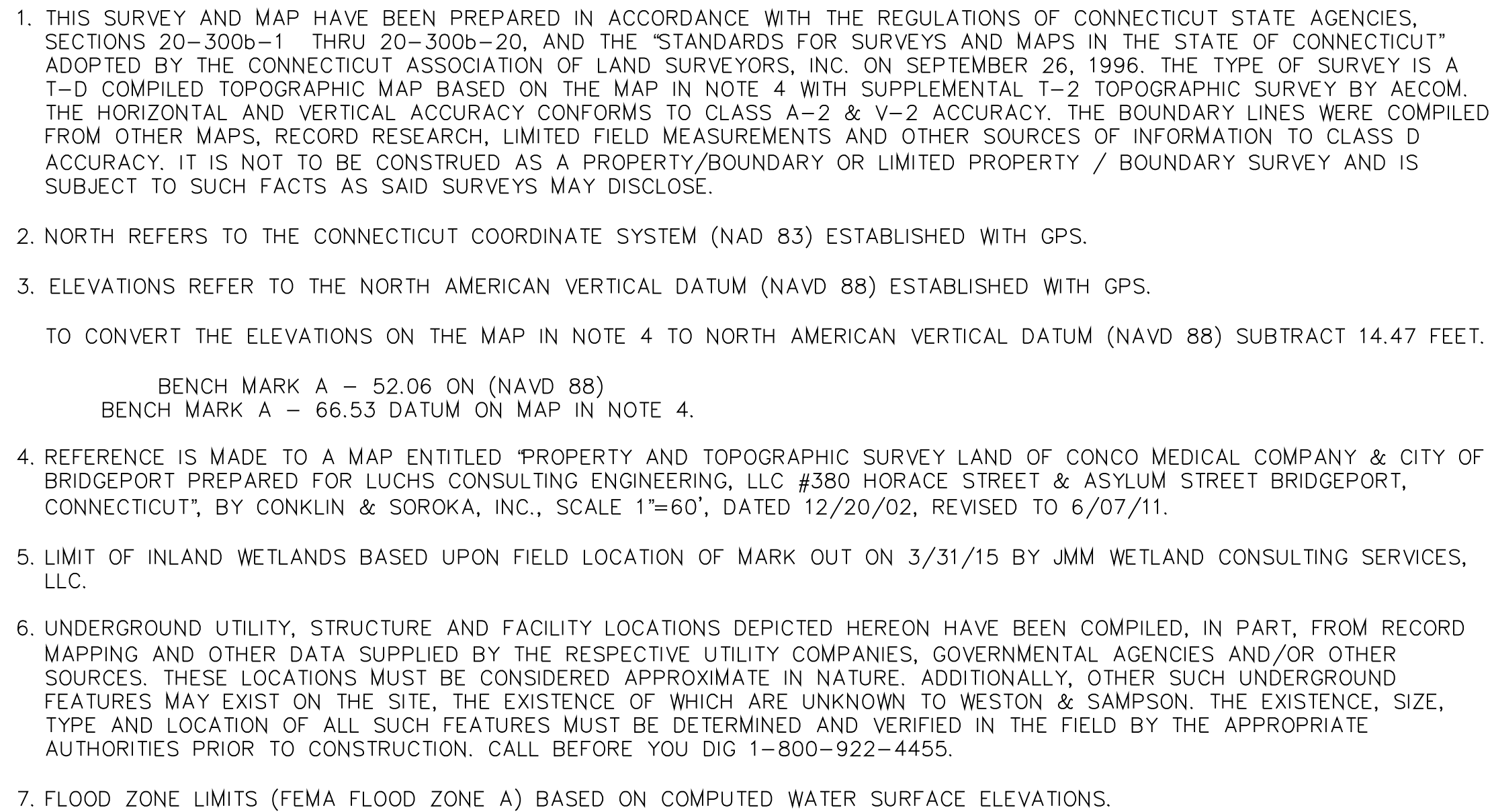
Weston & Sampson®

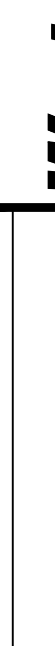
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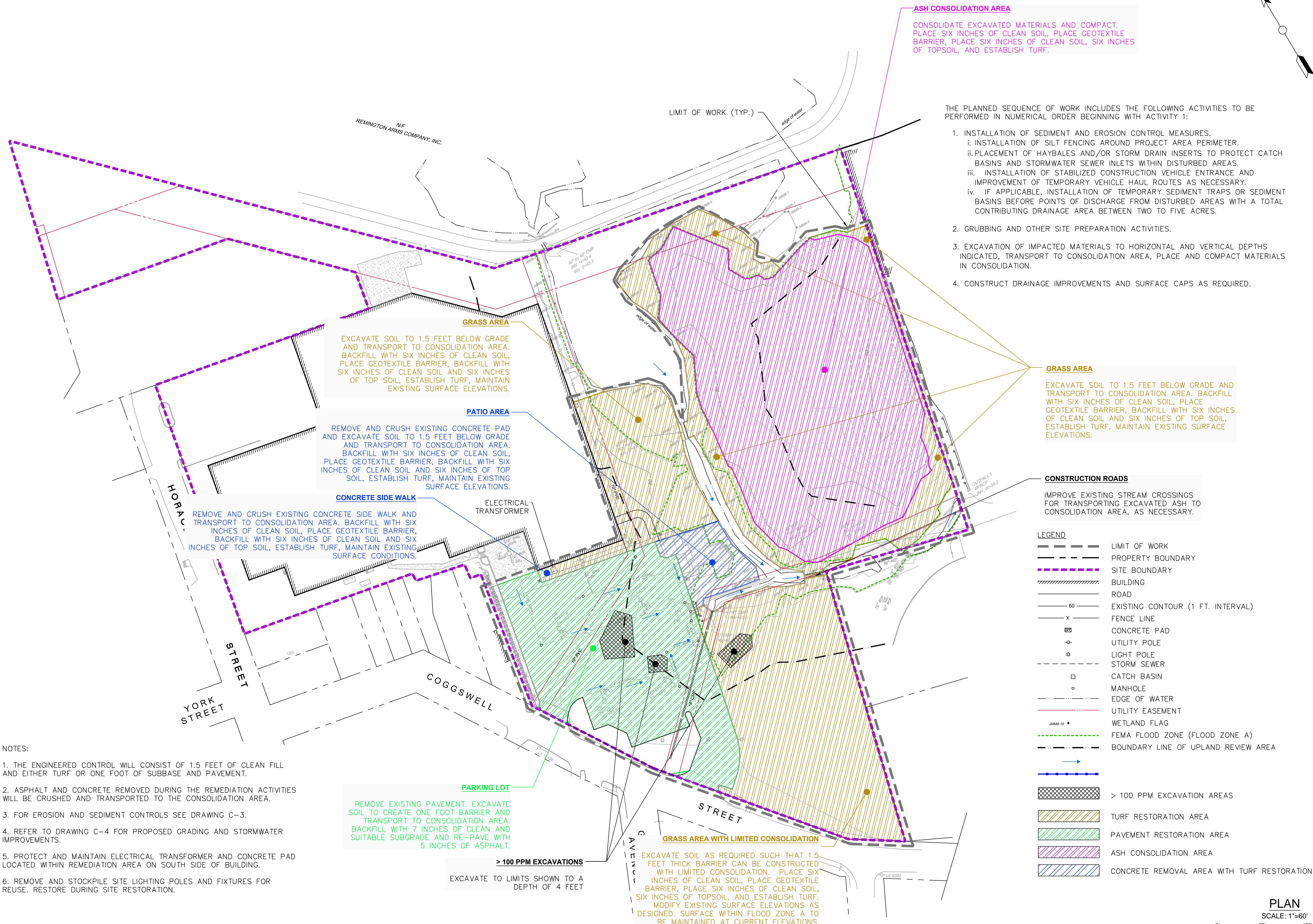
AC	ASBESTOS CEMENT PIPE
ACCOMP	ASPHALT COATED CORRUGATED METAL PIPE
ARV	RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BC	BITUMINOUS CONCRETE
BCLC	BITUMINOUS CONCRETE LIP CURB
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BO	BLOW OFF
BV	BUTTERFLY VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CC	CONCRETE CURB
CI	CAST IRON
CL	CENTERLINE
CL	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CU FT	CUBIC FEET
CY	CUBIC YARD
D	STORM DRAIN, DEPTH FROM RIM TO INVERT
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
DWG	DRAWING
E	EAST, ELECTRIC
EA	EACH
EF	EACH FACE
EL	ELEVATION
EOP	EDGE OF PAVEMENT
EW	EACH WAY
EXIST	EXISTING
FF	FINISHED FLOOR
FL	FLOW LINE
FLG	FLANGE
FT	FEET, FOOT
G	NATURAL GAS
GALV	GALVANIZED
GC	GRANITE CURB
GR	GRANITE
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE
HYD	FIRE HYDRANT
INV	INVERT
ID	INSIDE DIAMETER
IP	IRON PIPE
LB	POUND
LF	LINEAR FEET
LS	LUMP SUM
MAX	MAXIMUM
MB	MAIL BOX
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT
N	NORTH
N/A	NOT APPLICABLE
NE	NORTH EAST
NW	NORTH WEST
NF	NOT FOUND
N/F	NOW OR FORMERLY
NO OR #	NUMBER
N.T.S.	NOT TO SCALE
OD	OUTSIDE DIAMETER
PCB	PROPOSED CATCH BASIN
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PDMH	PROPOSED DRAINAGE MANHOLE
PE	PLAIN END, POLYETHYLENE
PED	PEDESTRIAN
R	PROPERTY LINE
PL	PLATE
PSMH	PROPOSED SANITARY MANHOLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RQD	ROCK QUALITY
S	SEWER, SOUTH
SE	SOUTH EAST
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SMH	SANITARY SEWER MANHOLE
SPEC	SPECIFICATIONS
SQ FT	SQUARE FEET
SS	SEWER SERVICE, STAINLESS STEEL
STA	STATION
STL	STEEL
SW	SIDEWALK, SOUTH WEST
T	HYDROSTATIC THRUST, TELEPHONE
TBM	TEMPORARY BENCH MARK
TF	TOP OF FRAME
THK	THICK (NESS)
TYP	TYPICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY
VERT	VERTICAL
W	WATER, WEST
W/	WITH
W/O	WITHOUT

1. THE CONTRACTOR SHALL CALL "CALL BEFORE YOU DIG" (CBYD) AT 1-800-922-4455 OR 811 AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE (CBYD) PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
2. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN. CONTRACTOR SHALL DIG TEST PITS AS NEEDED TO LOCATE THESE ITEMS. DIGGING OF TEST PITS SHALL BE INCIDENTAL TO THE PROJECT.
3. TEST PITS TO LOCATE EXISTING UTILITIES MAY BE ORDERED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
4. STONE WALLS, FENCES, MAIL BOXES, SIGNS, CURBS, LIGHT POLES, ETC.. SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK. UNLESS OTHERWISE INDICATED, ALL SUCH WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE PROJECT.
5. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS BEYOND THE LIMITS OF CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE LIMITS OF CONSTRUCTION SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WATERCOURSE.
8. CONTRACTOR SHALL VISIT AND EXAMINE THE SITE TO FULLY UNDERSTAND ALL THE CONDITIONS PERTAINING TO THE WORK, UNDERSTAND DIFFICULTIES TO BE ENCOUNTERED, UNDERSTAND THE SCOPE OF THE REMEDIATION WORK FOR ALL SYSTEMS WHETHER SHOWN OR DESCRIBED AT NO ADDITIONAL COST TO THE OWNER. THE EXACT LOCATION OF EXISTING PIPE, BUILDINGS, SERVICES, ETC. ARE TO BE FIELD VERIFIED.
9. CONTRACTOR TO VERIFY ALL DIMENSIONS, CLEARANCES, ELEVATIONS, AND SIZES OF EXISTING PIPES AND BUILDINGS.
10. ALL WORK UNDER THIS CONTRACT SHALL BE LIMITED TO THE "LIMIT OF WORK" BOUNDARY SHOWN ON THE DRAWING.
11. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROLS FOR THE DURATION OF THE PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE FURNISHED, INSTALLED, MAINTAINED, AND REPLACED BY THE CONTRACTOR AS NEEDED TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT LEAVE THE LIMIT OF WORK.
12. ALL WATER WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RULES AND REGULATIONS, AND STANDARDS OF AQUARIUM WATER COMPANY, INC.
13. ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RULES AND REGULATIONS AND STANDARDS OF THE APPLICABLE LOCAL UTILITY COMPANY.
14. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED LOCAL, STATE, AND UTILITY PERMITTING.

	CADD NO. <b>MDL REALTY</b>	SCALE:	CONTRACT:	JOB NO.	DR.BY L.E.C.	DSN.BY L.E.C.	CHK.BY J.S.P.	APP.BY —
	REMEDIAL DESIGN ASH CONSOLIDATION CLOSURE CONSTRUCTION							
	380 HORACE ST., BRIDGEPORT, CT							
	MDL REALTY, LLC							
SHEET 2 OF 12								
FILE NO.								
ABREVIATIONS AND NOTES								
No.	Date	Dr.By	Ck.By	App.By	Description			
					Weston & Sampson® 273 Dividend Road, Rocky Hill, CT 06067 (860) 513-4773 (800) SAMPSON www.westonandsampson.com			



	MDL REALTY, LLC 380 HORACE ST., BRIDGEPORT, CT					
	REMEDIAL DESIGN ASH CONSOLIDATION CLOSURE CONSTRUCTION					
EXISTING CONDITIONS PLAN						
FILE NO. CADD NO. MDL REALTY	SCALE: 1"=60'	CONTRACT: -	JOB NO. 2160197	DR.BY L.E.C.	CHK.BY J.S.P.	APP.BY -



**ASH CONSOLIDATION AREA**  
CONSOLIDATE EXCAVATED MATERIALS AND COMPACT. PLACE SIX INCHES OF CLEAN SOIL, PLACE GEOTEXTILE BARRIER, PLACE SIX INCHES OF CLEAN SOIL, SIX INCHES OF TOPSOIL, AND ESTABLISH TURF.

- THE PLANNED SEQUENCE OF WORK INCLUDES THE FOLLOWING ACTIVITIES TO BE PERFORMED IN NUMERICAL ORDER BEGINNING WITH ACTIVITY 1:
1. INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES.
    - i. INSTALLATION OF SILT FENCING AROUND PROJECT AREA PERIMETER.
    - ii. PLACEMENT OF HAYBALES AND/OR STORM DRAIN INSERTS TO PROTECT CATCH BASINS AND STORMWATER SEWER INLETS WITHIN DISTURBED AREAS.
    - iii. INSTALLATION OF STABILIZED CONSTRUCTION VEHICLE ENTRANCE AND IMPROVEMENT OF TEMPORARY VEHICLE HAUL ROUTES AS NECESSARY.
    - iv. IF APPLICABLE, INSTALLATION OF TEMPORARY SEDIMENT TRAPS OR SEDIMENT BASINS BEFORE POINTS OF DISCHARGE FROM DISTURBED AREAS WITH A TOTAL CONTRIBUTING DRAINAGE AREA BETWEEN TWO TO FIVE ACRES.
  2. GRUBBING AND OTHER SITE PREPARATION ACTIVITIES.
  3. EXCAVATION OF IMPACTED MATERIALS TO HORIZONTAL AND VERTICAL DEPTHS INDICATED, TRANSPORT TO CONSOLIDATION AREA, PLACE AND COMPACT MATERIALS IN CONSOLIDATION.
  4. CONSTRUCT DRAINAGE IMPROVEMENTS AND SURFACE CAPS AS REQUIRED.

**GRASS AREA**  
EXCAVATE SOIL TO 1.5 FEET BELOW GRADE AND TRANSPORT TO CONSOLIDATION AREA. BACKFILL WITH SIX INCHES OF CLEAN SOIL, PLACE GEOTEXTILE BARRIER, BACKFILL WITH SIX INCHES OF CLEAN SOIL AND SIX INCHES OF TOP SOIL, ESTABLISH TURF, MAINTAIN EXISTING SURFACE ELEVATIONS.

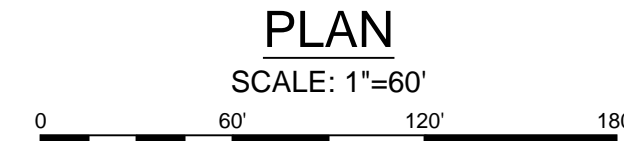
**CONSTRUCTION ROADS**  
IMPROVE EXISTING STREAM CROSSINGS FOR TRANSPORTING EXCAVATED ASH TO CONSOLIDATION AREA, AS NECESSARY.

- LEGEND**
- LIMIT OF WORK
  - - - PROPERTY BOUNDARY
  - - - SITE BOUNDARY
  - ||||| BUILDING
  - == ROAD
  - - - 60 EXISTING CONTOUR (1 FT. INTERVAL)
  - x - FENCE LINE
  - ▣ CONCRETE PAD
  - UTILITY POLE
  - ☆ LIGHT POLE
  - - - STORM SEWER
  - CATCH BASIN
  - MANHOLE
  - - - EDGE OF WATER
  - - - UTILITY EASEMENT
  - - - WETLAND FLAG
  - - - FEMA FLOOD ZONE (FLOOD ZONE A)
  - - - BOUNDARY LINE OF UPLAND REVIEW AREA
  - DRAINAGE DIRECTION
  - ▨ > 100 PPM EXCAVATION AREAS
  - ▨ TURF RESTORATION AREA
  - ▨ PAVEMENT RESTORATION AREA
  - ▨ ASH CONSOLIDATION AREA
  - ▨ CONCRETE REMOVAL AREA WITH TURF RESTORATION

- NOTES:
1. THE ENGINEERED CONTROL WILL CONSIST OF 1.5 FEET OF CLEAN FILL AND EITHER TURF OR ONE FOOT OF SUBBASE AND PAVEMENT.
  2. ASPHALT AND CONCRETE REMOVED DURING THE REMEDIATION ACTIVITIES WILL BE CRUSHED AND TRANSPORTED TO THE CONSOLIDATION AREA.
  3. FOR EROSION AND SEDIMENT CONTROLS SEE DRAWING C-3.
  4. REFER TO DRAWING C-4 FOR PROPOSED GRADING AND STORMWATER IMPROVEMENTS.
  5. PROTECT AND MAINTAIN ELECTRICAL TRANSFORMER AND CONCRETE PAD LOCATED WITHIN REMEDIATION AREA ON SOUTH SIDE OF BUILDING.
  6. REMOVE AND STOCKPILE SITE LIGHTING POLES AND FIXTURES FOR REUSE. RESTORE DURING SITE RESTORATION.

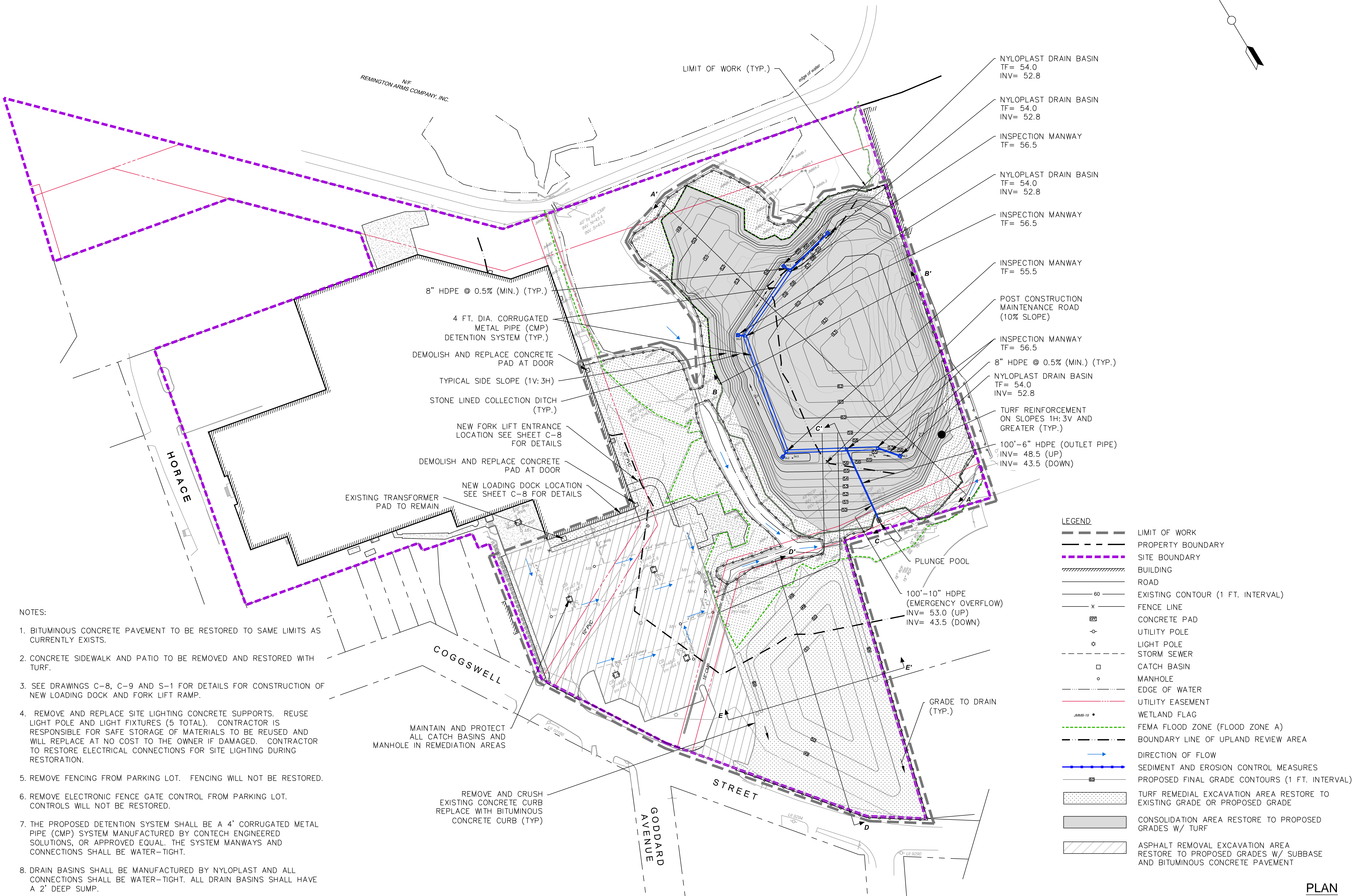
**> 100 PPM EXCAVATIONS**  
EXCAVATE TO LIMITS SHOWN TO A DEPTH OF 4 FEET

EXCAVATE SOIL AS REQUIRED SUCH THAT 1.5 FEET THICK BARRIER CAN BE CONSTRUCTED WITH LIMITED CONSOLIDATION. PLACE SIX INCHES OF CLEAN SOIL, PLACE GEOTEXTILE BARRIER, PLACE SIX INCHES OF CLEAN SOIL, SIX INCHES OF TOPSOIL, AND ESTABLISH TURF. MODIFY EXISTING SURFACE ELEVATIONS AS DESIGNED. SURFACE WITHIN FLOOD ZONE A TO BE MAINTAINED AT CURRENT ELEVATIONS.



No.	Date	Dr. By	Ck. By	App. By	Description





NOTES:

1. BITUMINOUS CONCRETE PAVEMENT TO BE RESTORED TO SAME LIMITS AS CURRENTLY EXISTS.
2. CONCRETE SIDEWALK AND PATIO TO BE REMOVED AND RESTORED WITH TURF.
3. SEE DRAWINGS C-8, C-9 AND S-1 FOR DETAILS FOR CONSTRUCTION OF NEW LOADING DOCK AND FORK LIFT RAMP.
4. REMOVE AND REPLACE SITE LIGHTING CONCRETE SUPPORTS. REUSE LIGHT POLE AND LIGHT FIXTURES (5 TOTAL). CONTRACTOR IS RESPONSIBLE FOR SAFE STORAGE OF MATERIALS TO BE REUSED AND WILL REPLACE AT NO COST TO THE OWNER IF DAMAGED. CONTRACTOR TO RESTORE ELECTRICAL CONNECTIONS FOR SITE LIGHTING DURING RESTORATION.
5. REMOVE FENCING FROM PARKING LOT. FENCING WILL NOT BE RESTORED.
6. REMOVE ELECTRONIC FENCE GATE CONTROL FROM PARKING LOT. CONTROLS WILL NOT BE RESTORED.
7. THE PROPOSED DETENTION SYSTEM SHALL BE A 4' CORRUGATED METAL PIPE (CMP) SYSTEM MANUFACTURED BY CONTECH ENGINEERED SOLUTIONS, OR APPROVED EQUAL. THE SYSTEM MANWAYS AND CONNECTIONS SHALL BE WATER-TIGHT.
8. DRAIN BASINS SHALL BE MANUFACTURED BY NYLOPLAST AND ALL CONNECTIONS SHALL BE WATER-TIGHT. ALL DRAIN BASINS SHALL HAVE A 2' DEEP SUMP.

- LEGEND**
- LIMIT OF WORK
  - - - PROPERTY BOUNDARY
  - - - SITE BOUNDARY
  - ▨ BUILDING
  - ROAD
  - - - EXISTING CONTOUR (1 FT. INTERVAL)
  - x - FENCE LINE
  - ▣ CONCRETE PAD
  - UTILITY POLE
  - LIGHT POLE
  - - - STORM SEWER
  - ▣ CATCH BASIN
  - MANHOLE
  - - - EDGE OF WATER
  - - - UTILITY EASEMENT
  - - - WETLAND FLAG
  - - - FEMA FLOOD ZONE (FLOOD ZONE A)
  - - - BOUNDARY LINE OF UPLAND REVIEW AREA
  - DIRECTION OF FLOW
  - SEDIMENT AND EROSION CONTROL MEASURES
  - - - PROPOSED FINAL GRADE CONTOURS (1 FT. INTERVAL)
  - ▨ TURF REMEDIAL EXCAVATION AREA RESTORE TO EXISTING GRADE OR PROPOSED GRADE
  - ▨ CONSOLIDATION AREA RESTORE TO PROPOSED GRADES W/ TURF
  - ▨ ASPHALT REMOVAL EXCAVATION AREA RESTORE TO PROPOSED GRADES W/ SUBBASE AND BITUMINOUS CONCRETE PAVEMENT

PLAN

SCALE: 1"=60'

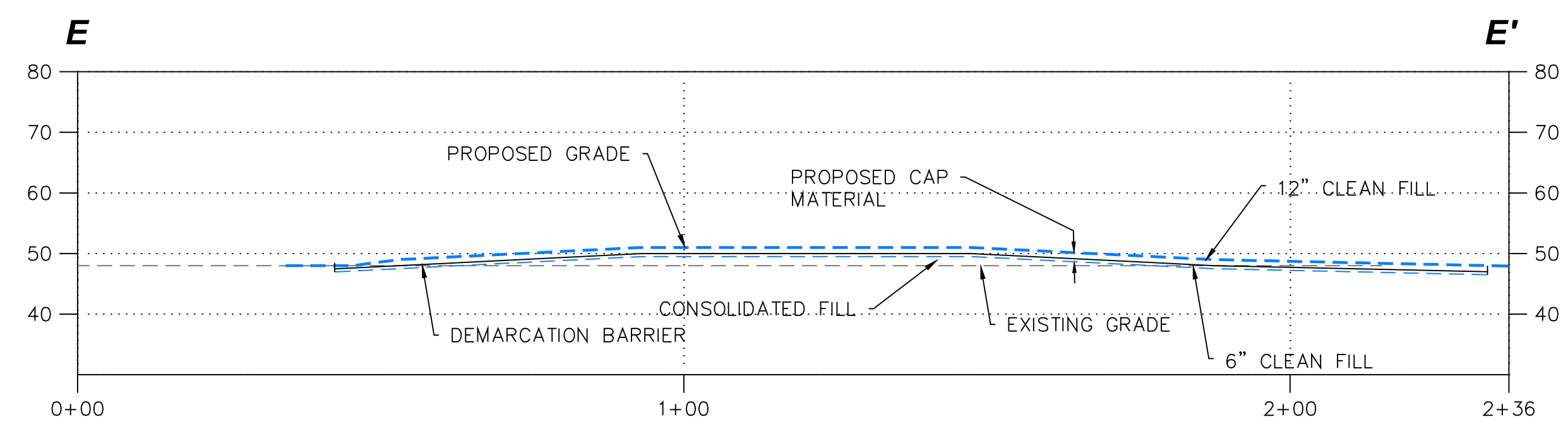
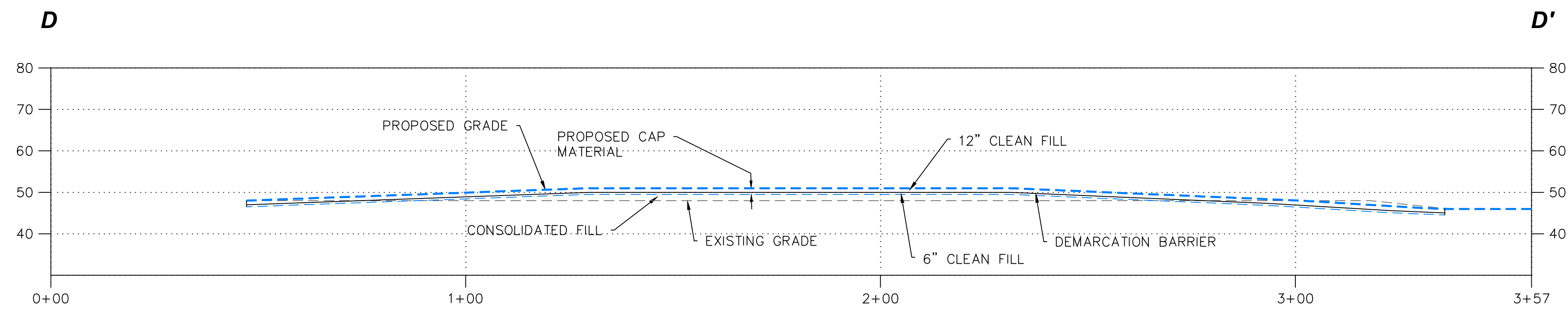
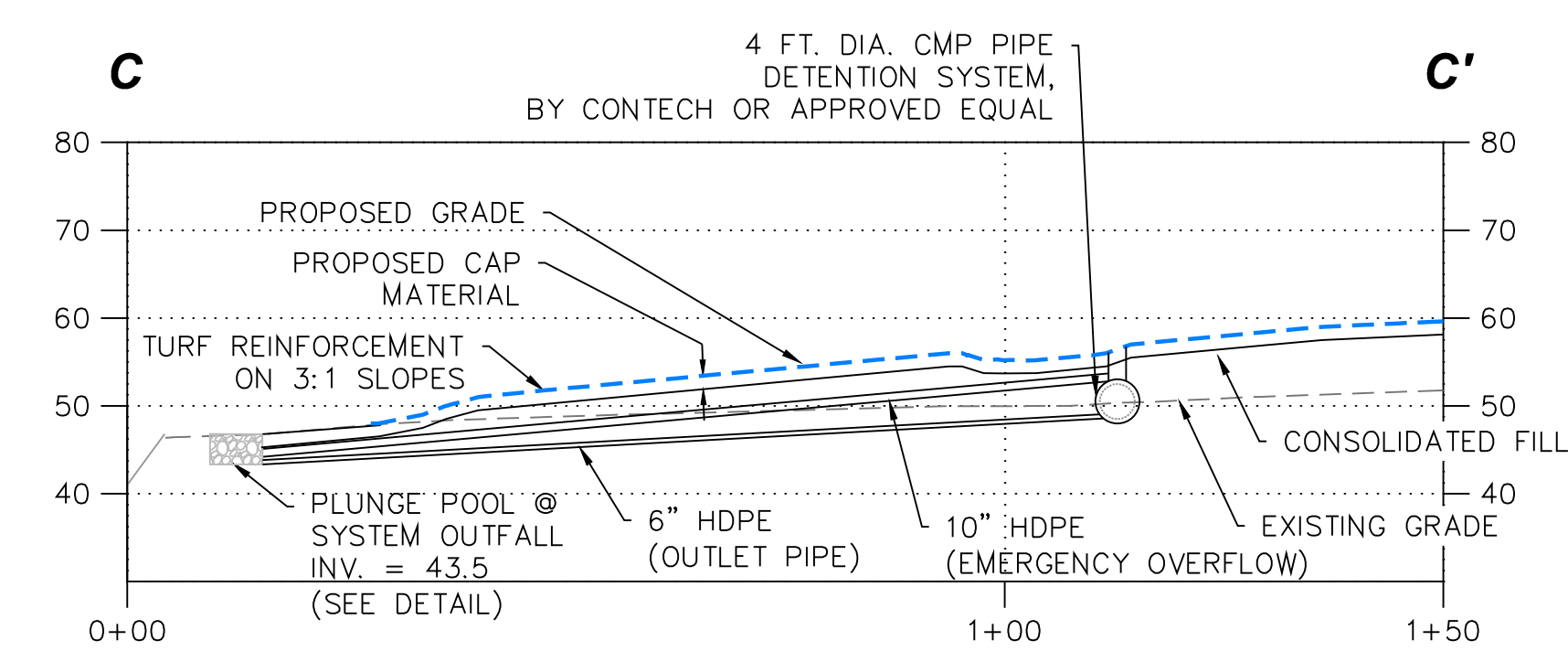
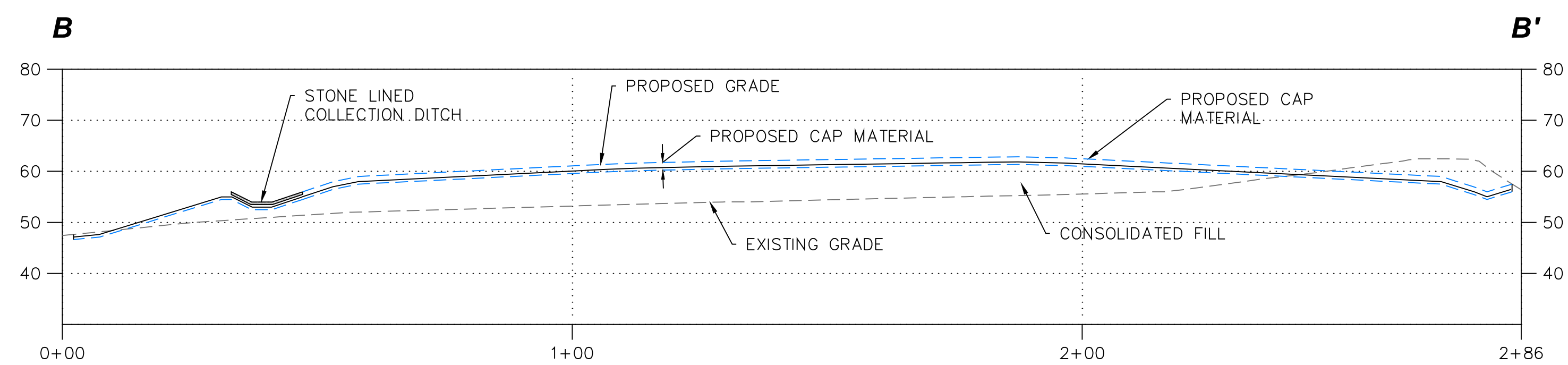
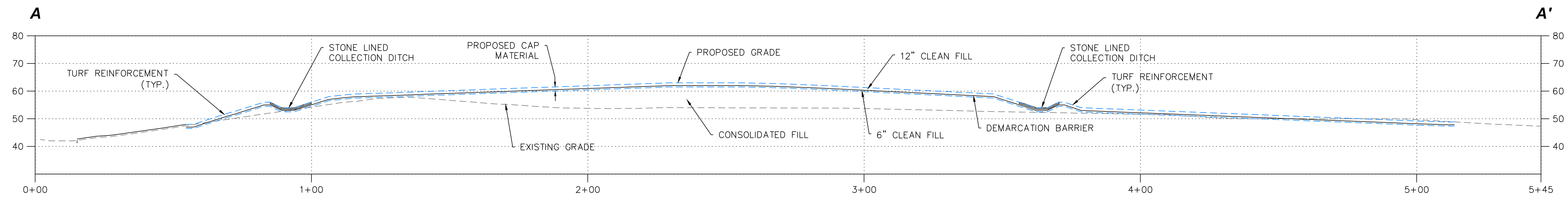


No.	Date	Dr. By	Ck. By	App. By	Description

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MDL REALTY, LLC 380 HORACE ST., BRIDGEPORT, CT	REMEDIAL DESIGN ASH CONSOLIDATION CLOSURE CONSTRUCTION	PROPOSED FINAL GRADING PLAN ASH CONSOLIDATION AREA	CADD NO. MDL REALTY	SCALE 1"=60'	CONTRACT 2160197	JOB NO. 2160197	DR. BY L.E.C.	CHK. BY M.A.B.	APP. BY J.S.P.
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C-4	FILE NO.
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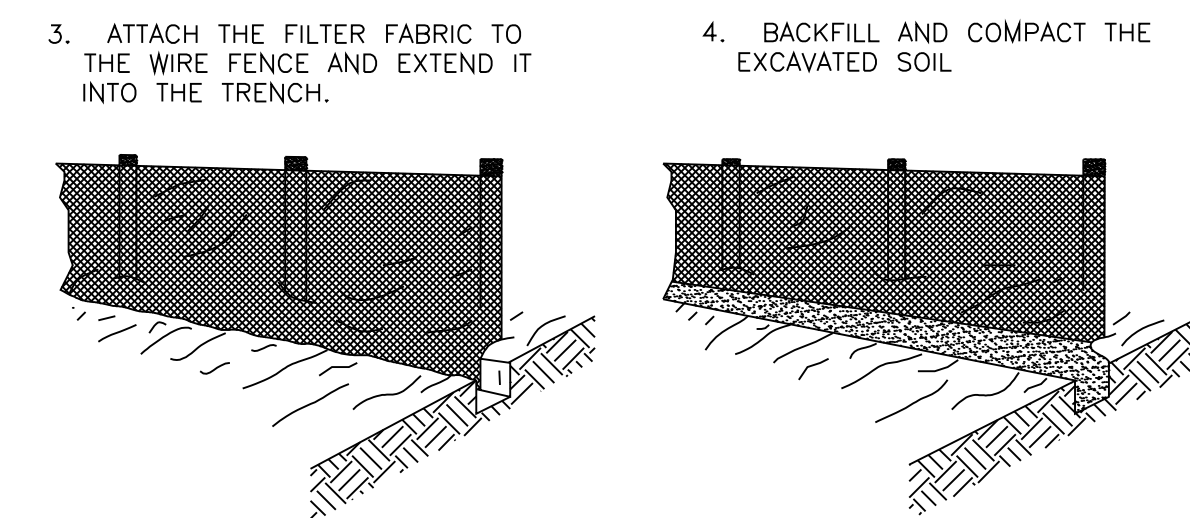
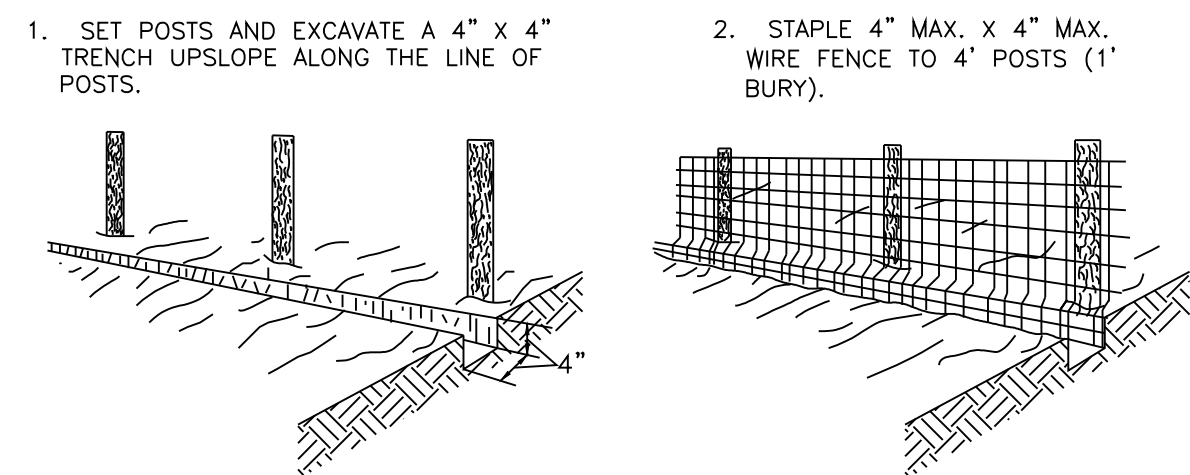


No.	Date	Dr. By	Ck. By	App. By	Description

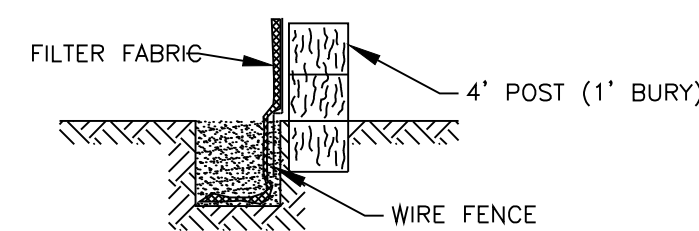
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MDL REALTY, LLC 380 HORACE ST., BRIDGEPORT, CT	REMEDIAL DESIGN ASH CONSOLIDATION CLOSURE CONSTRUCTION	SECTION 1	FILE NO.	CADD NO. MDL REALTY	SCALE 1"=20'	CONTRACT -	JOB NO. 2160197	DR. BY L.E.C.	CHK. BY M.A.B.	APP. BY -
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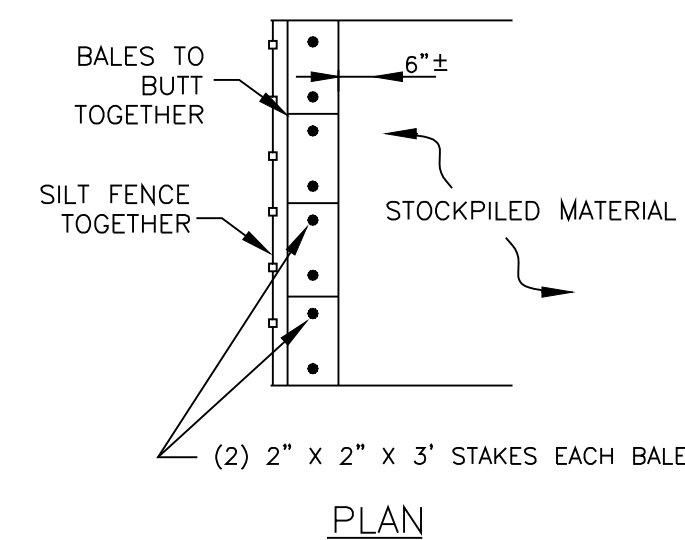


EXTENSION OF FABRIC AND WIRE FENCE INTO THE TRENCH

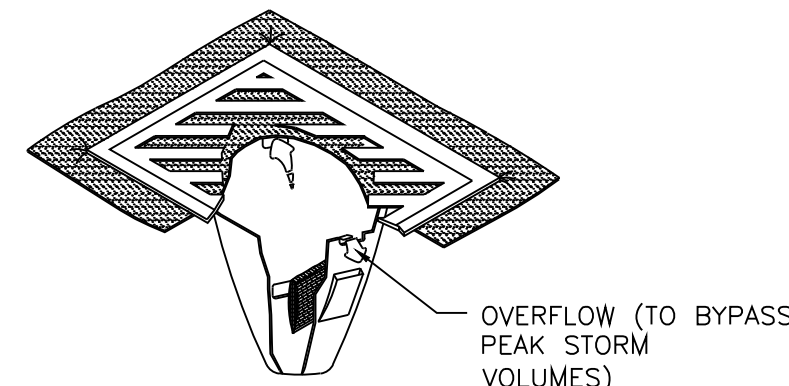


SECTION

SILT FENCE  
N.T.S.

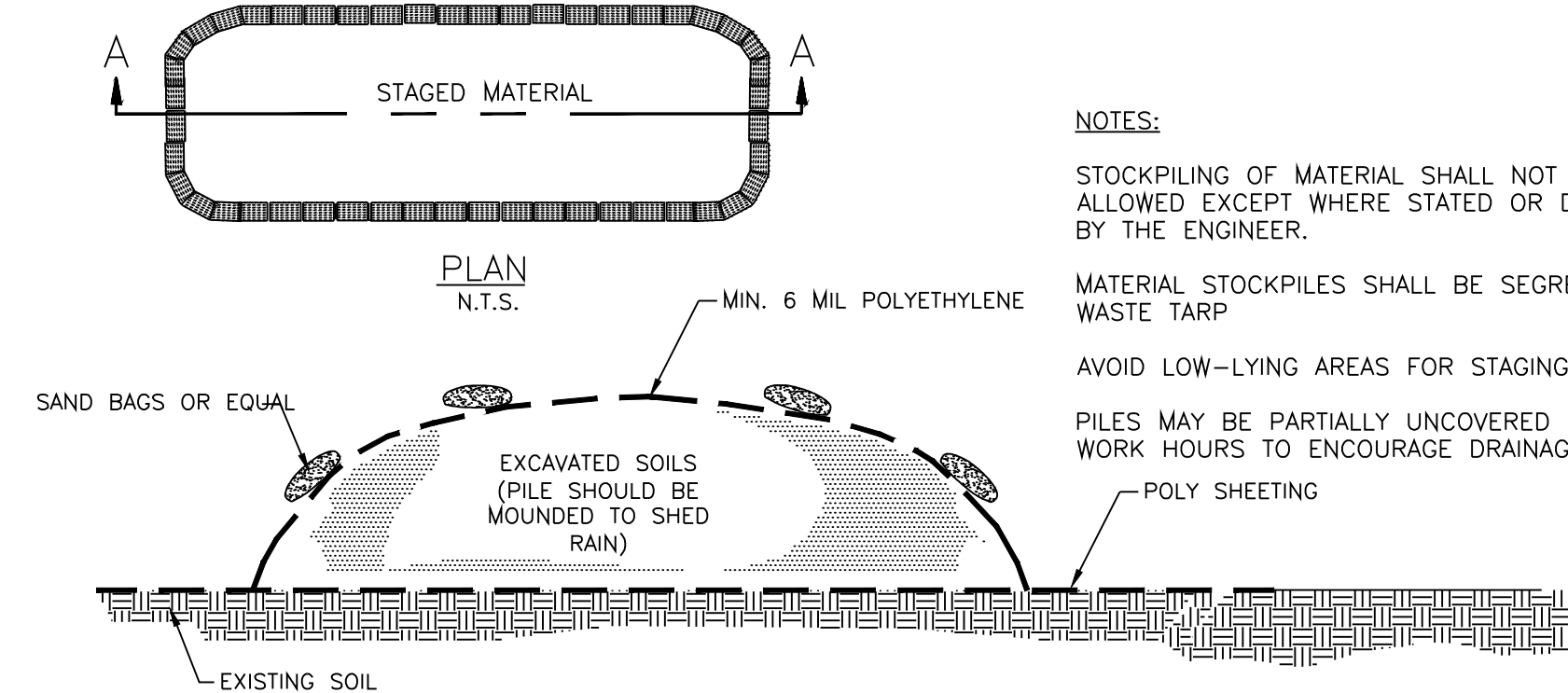


HAY BALE EROSION CONTROL  
N.T.S.



- NOTES:
1. STORM DRAIN INSERTS NEED TO BE REMOVED AT THE END OF THE WORK.
  2. STORM DRAIN INSERTS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS. CATCH BASIN INSERTS ARE NOT TO BE INSTALLED IN CURB INLETS.
  3. INSERTS SHALL BE INSPECTED AND MAINTAINED WHEN A 1/2 INCH RAIN ACCUMULATES WITHIN A 24 HOUR PERIOD. CLEAN AND/OR REPLACE INSERT WHEN HALF OF THE TRAP IS FILLED WITH SEDIMENTS.

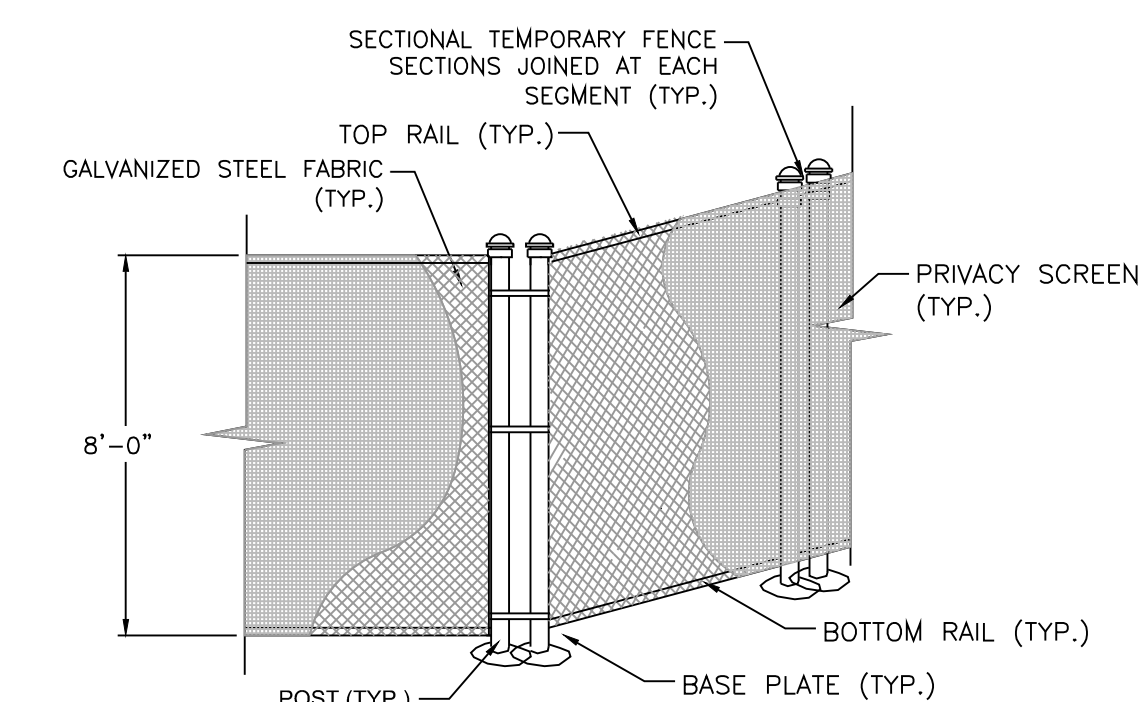
STORM DRAIN INLET PROTECTION



SECTION A-A

STAGED IMPACTED MATERIAL DETAIL  
N.T.S.

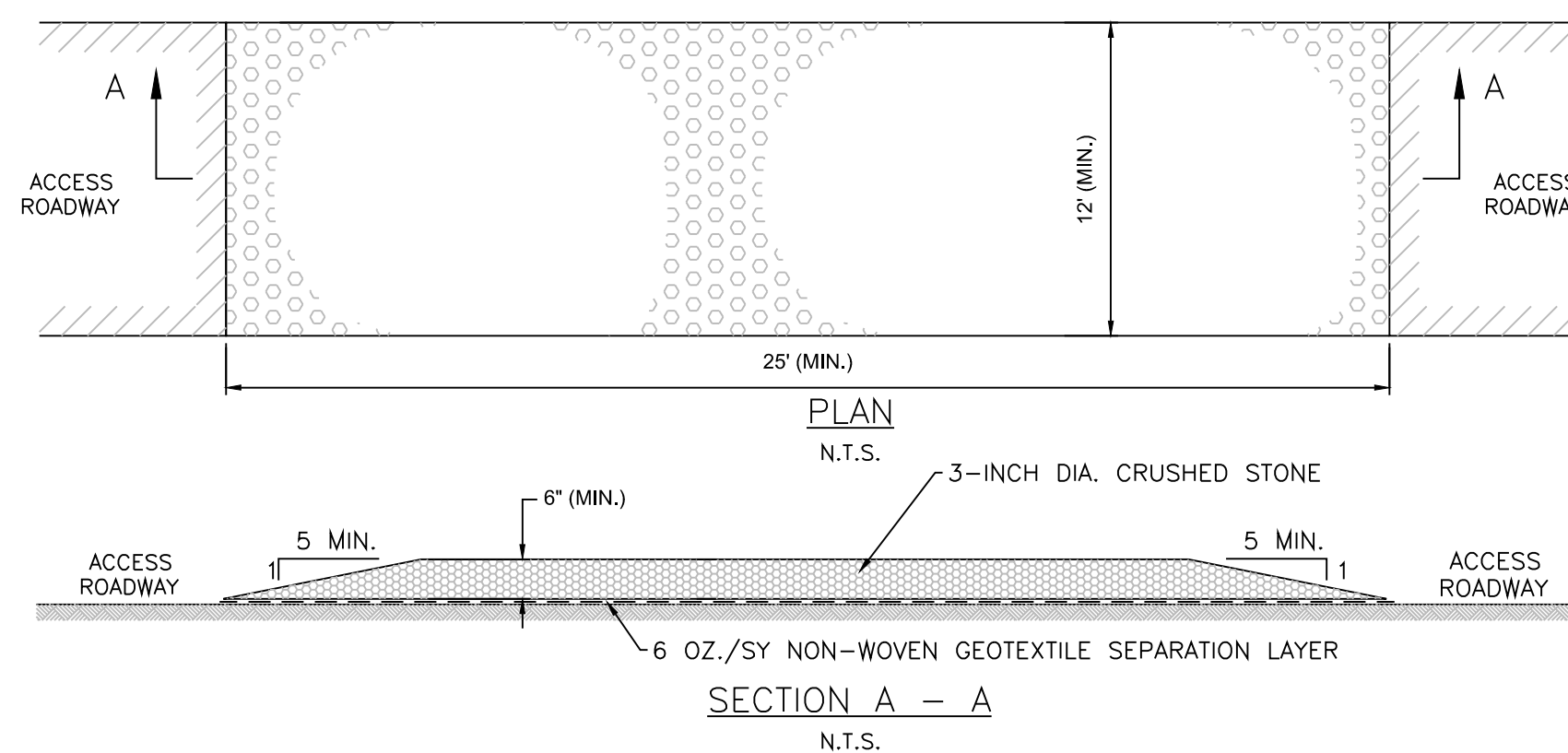
- NOTES:
- STOCKPIILING OF MATERIAL SHALL NOT BE ALLOWED EXCEPT WHERE STATED OR DIRECTED BY THE ENGINEER.
- MATERIAL STOCKPILES SHALL BE SEGREGATED BY WASTE TARP.
- AVOID LOW-LYING AREAS FOR STAGING.
- PILES MAY BE PARTIALLY UNCOVERED DURING WORK HOURS TO ENCOURAGE DRAINAGE.



DETAIL

TEMPORARY SECURITY FENCE  
N.T.S.

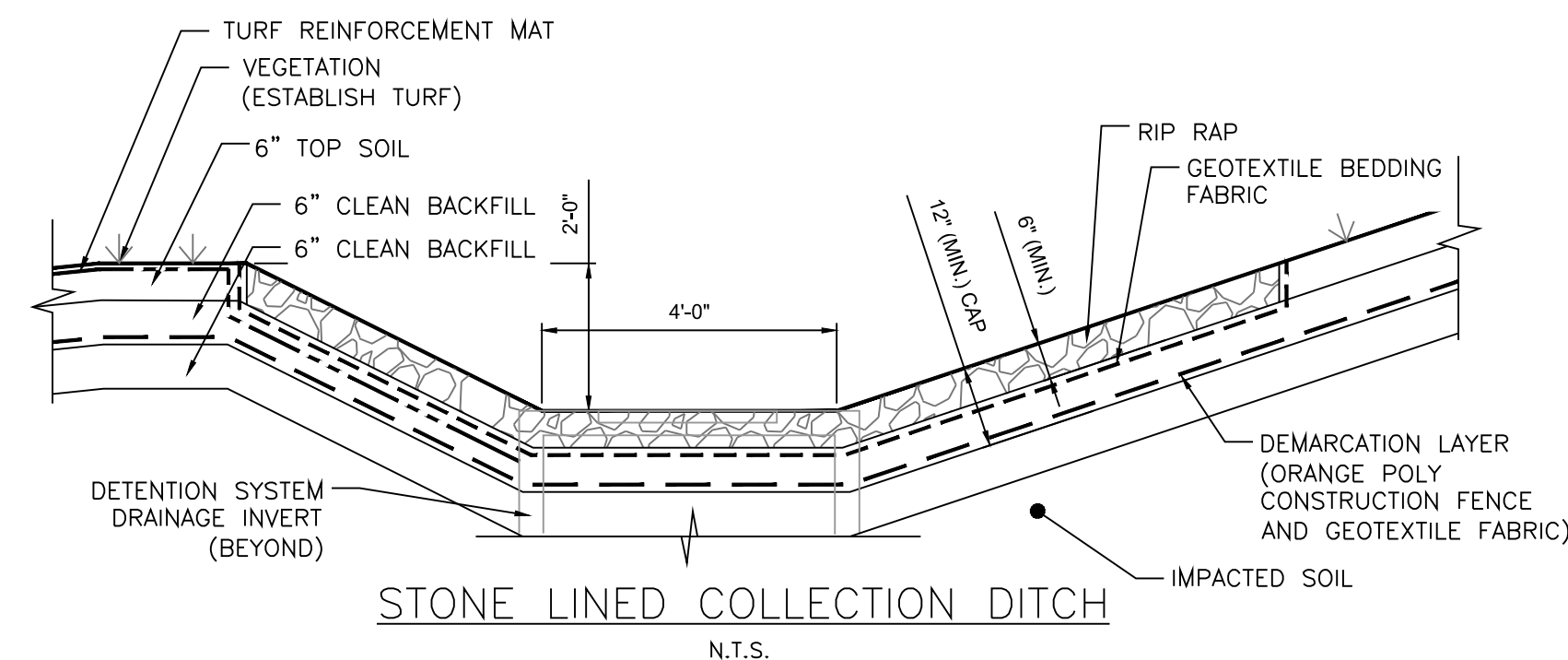
- NOTES:
- 1) CONTRACTOR SHALL MAINTAIN INTEGRITY OF SECURITY FENCING AND ENCLOSURE AT ALL TIMES.
  - 2) POSTS SHALL BE SET INTO THE GROUND OR CONNECTED TO BASE PLATES AND SHALL BE SUFFICIENTLY WEIGHTED TO RESIST OVERTURNING.



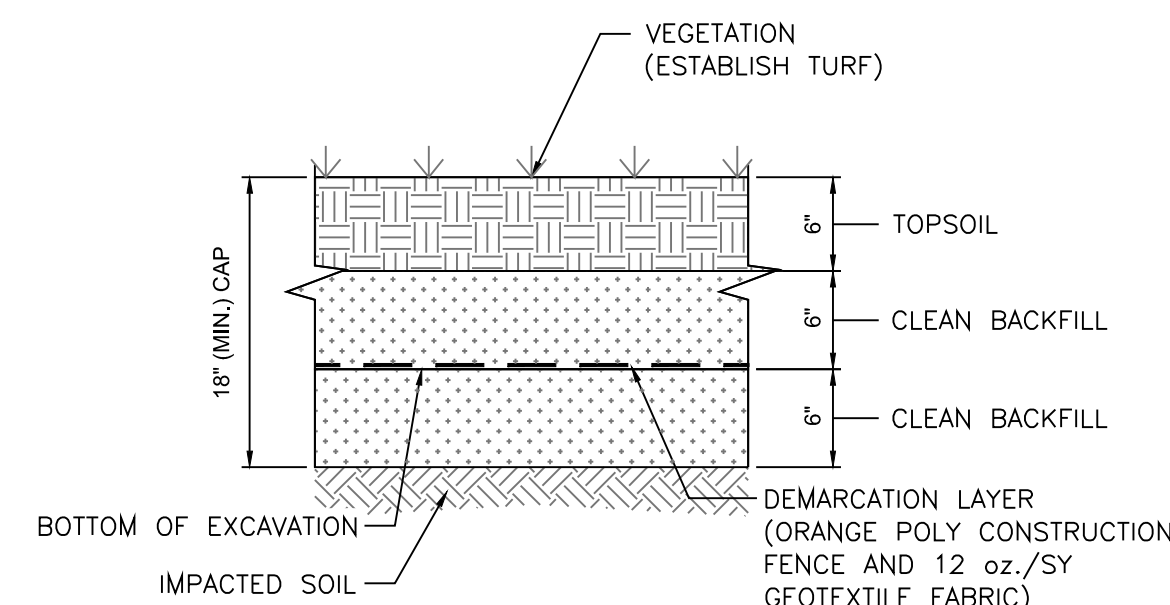
NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZING ACCESS ROADS AT ALL POINTS OF VEHICULAR INGRESS AND EGRESS FROM THE CONSTRUCTION SITE TO PUBLIC ROADWAYS.
2. THE ANTI-TRACKING PAD SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH CRUSHED STONE. AS CONDITIONS DEMAND, ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS SHALL BE REMOVED IMMEDIATELY.

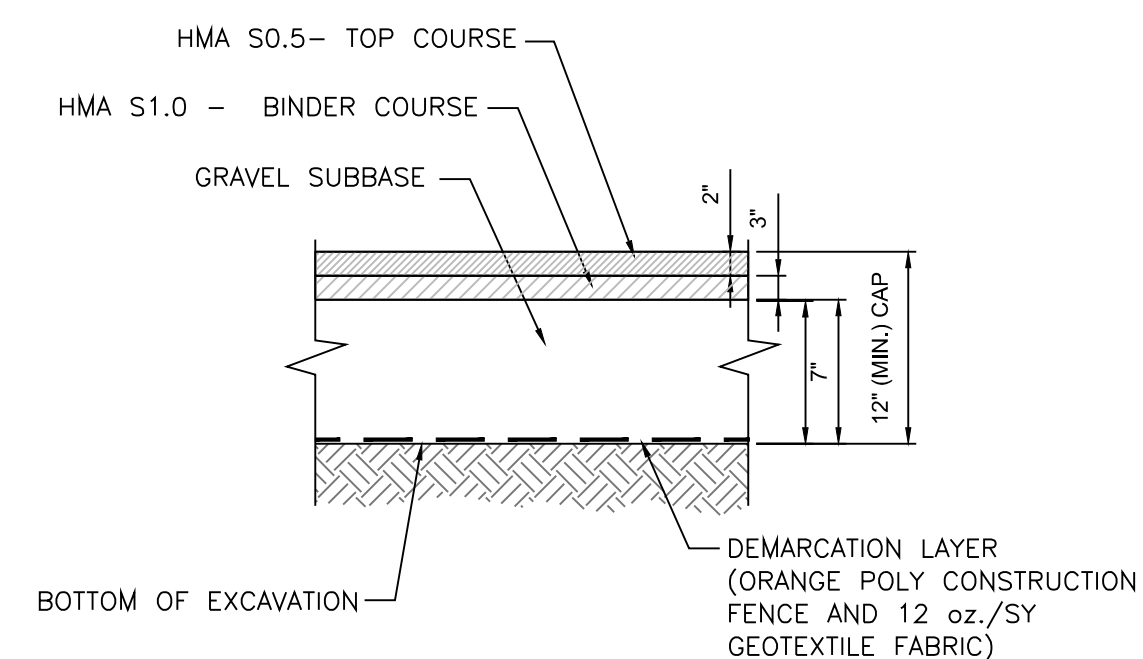
ANTI-TRACKING PAD  
N.T.S.



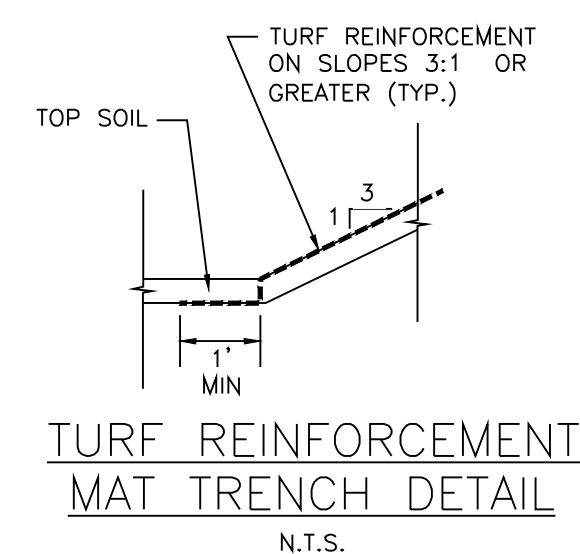
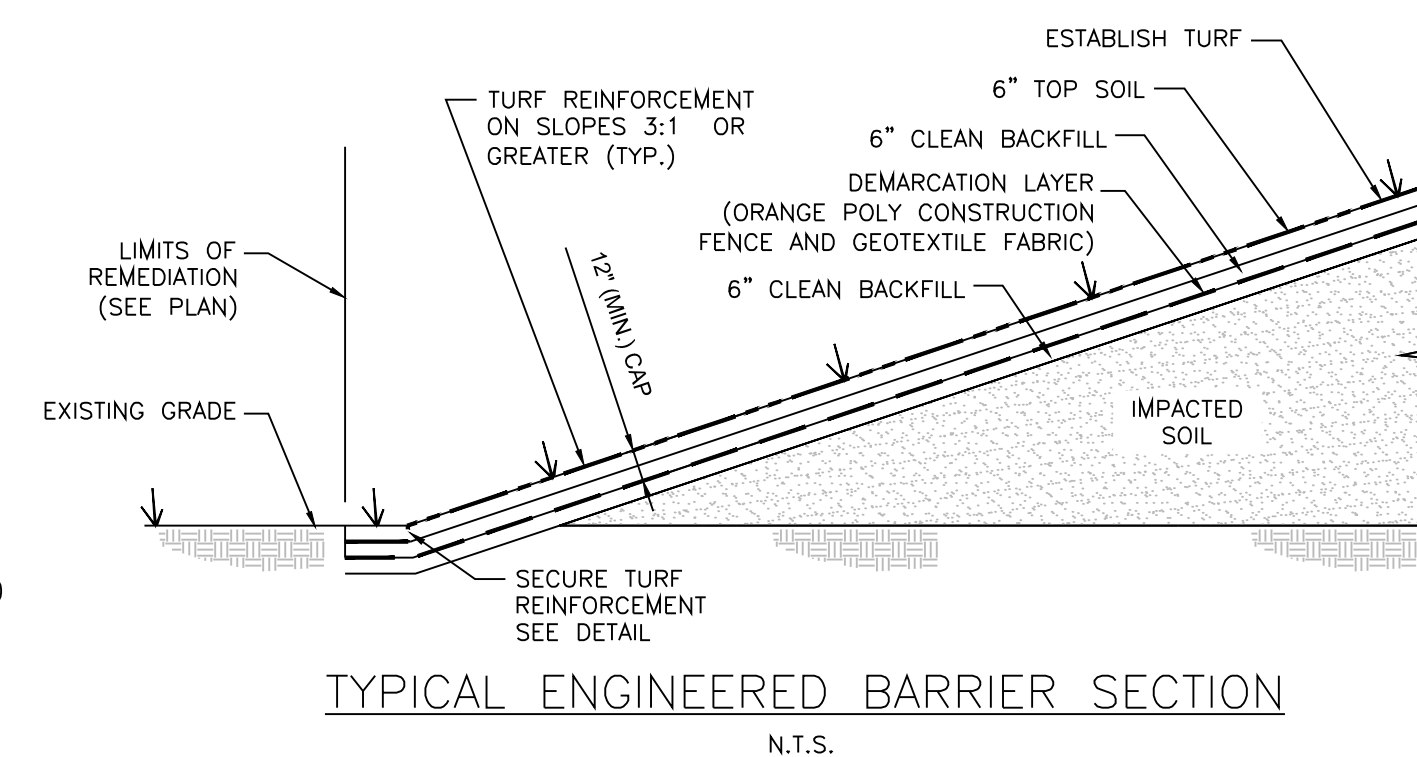
NOTE:  
SEE PLANS FOR GRADING.

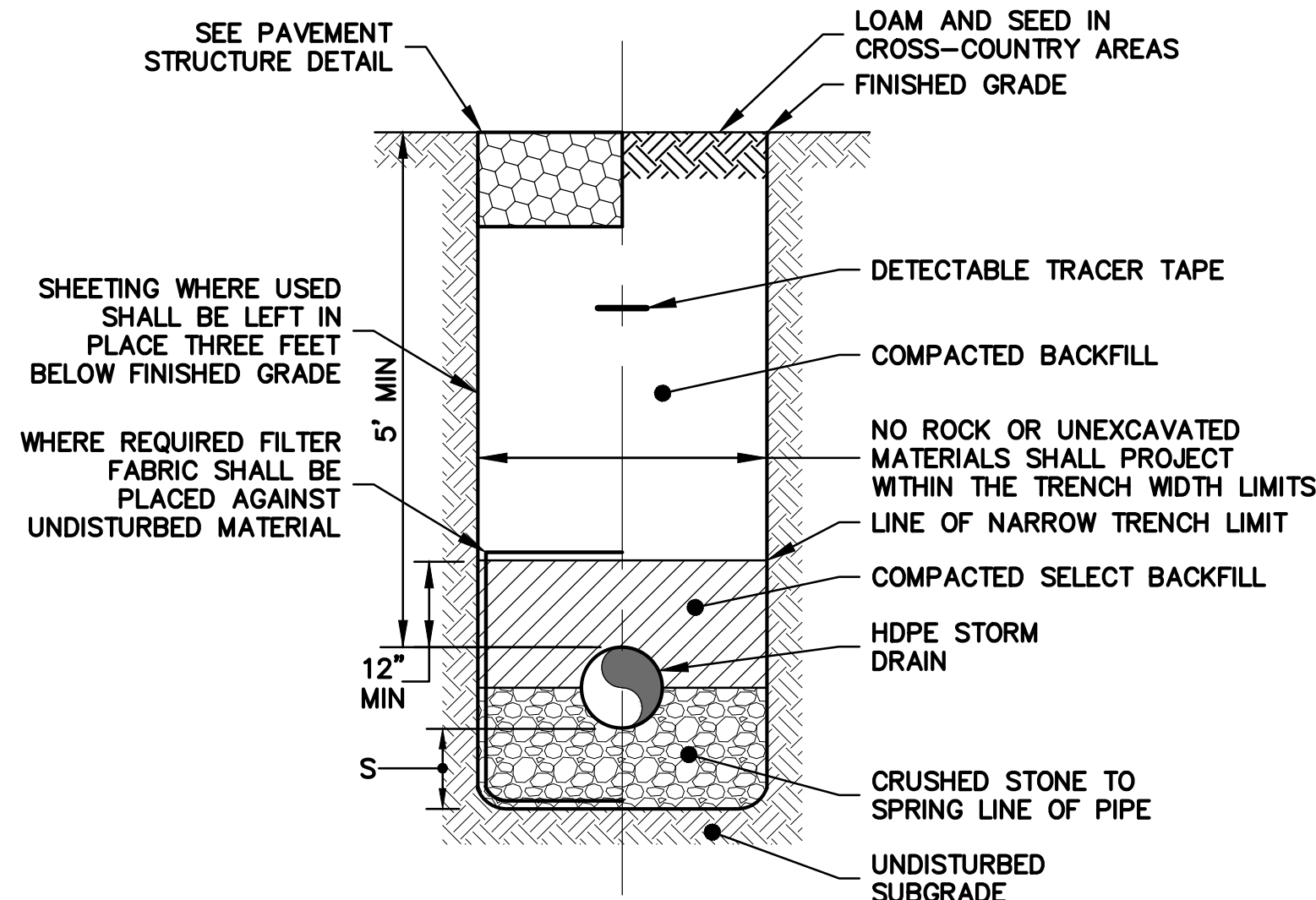


NOTE:  
WHERE TURF CAP MEETS BUILDING, DEMARCATION LAYER TO BE PLACED AGAINST BUILDING FACE TO TOP OF CAP



NOTE:  
WHERE ASPHALT CAP MEETS BUILDING OR UTILITY MANHOLE DEMARCATION LAYER TO BE PLACED AGAINST BUILDING FACE TO BASE OF ASPHALT

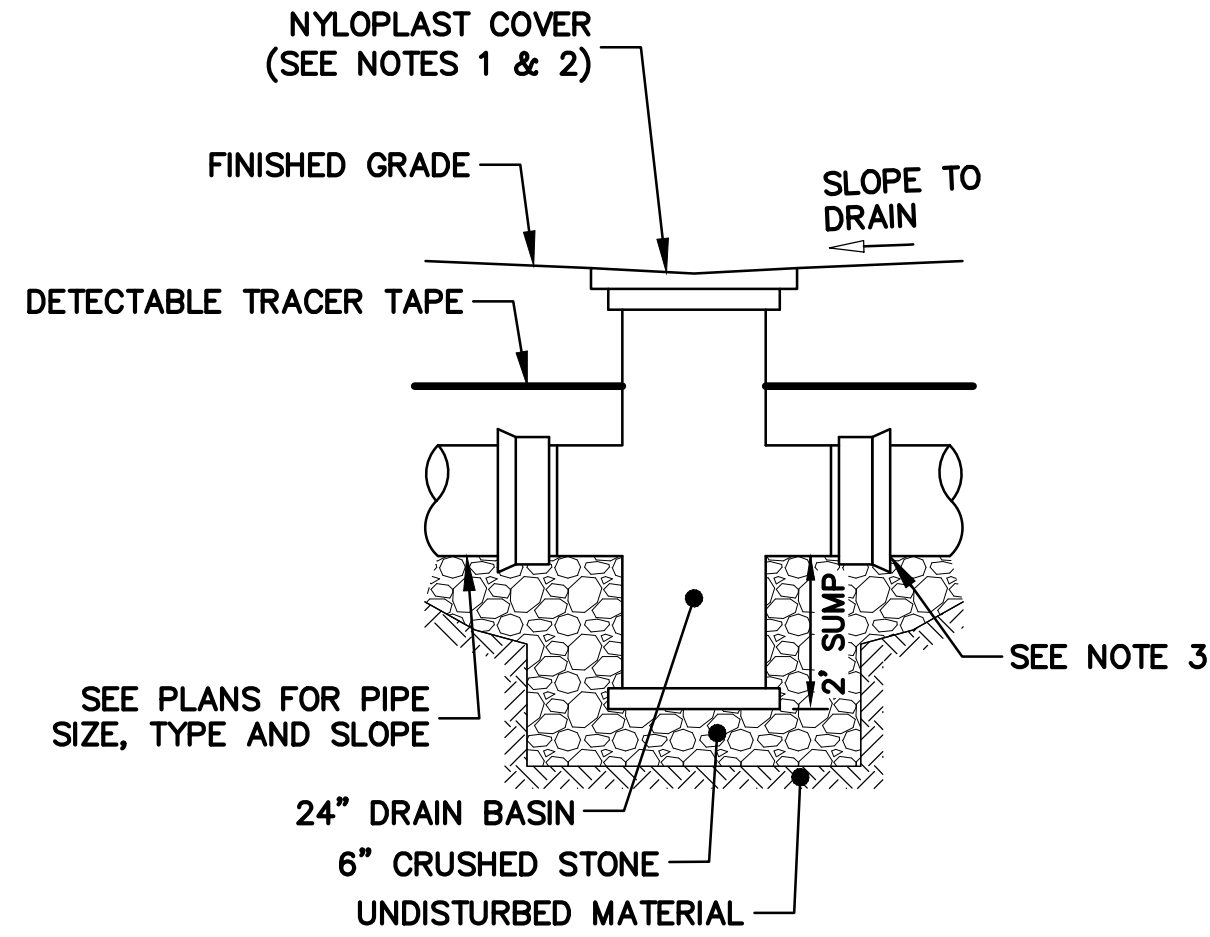




- NOTES:
- SEE PLANS FOR STORM DRAIN PIPE SIZE AND TYPE.
  - SEE PLANS AND SPECIFICATION FOR RESTORATION LOCATIONS AND DETAILS.

### STORM SEWER TRENCH DETAIL

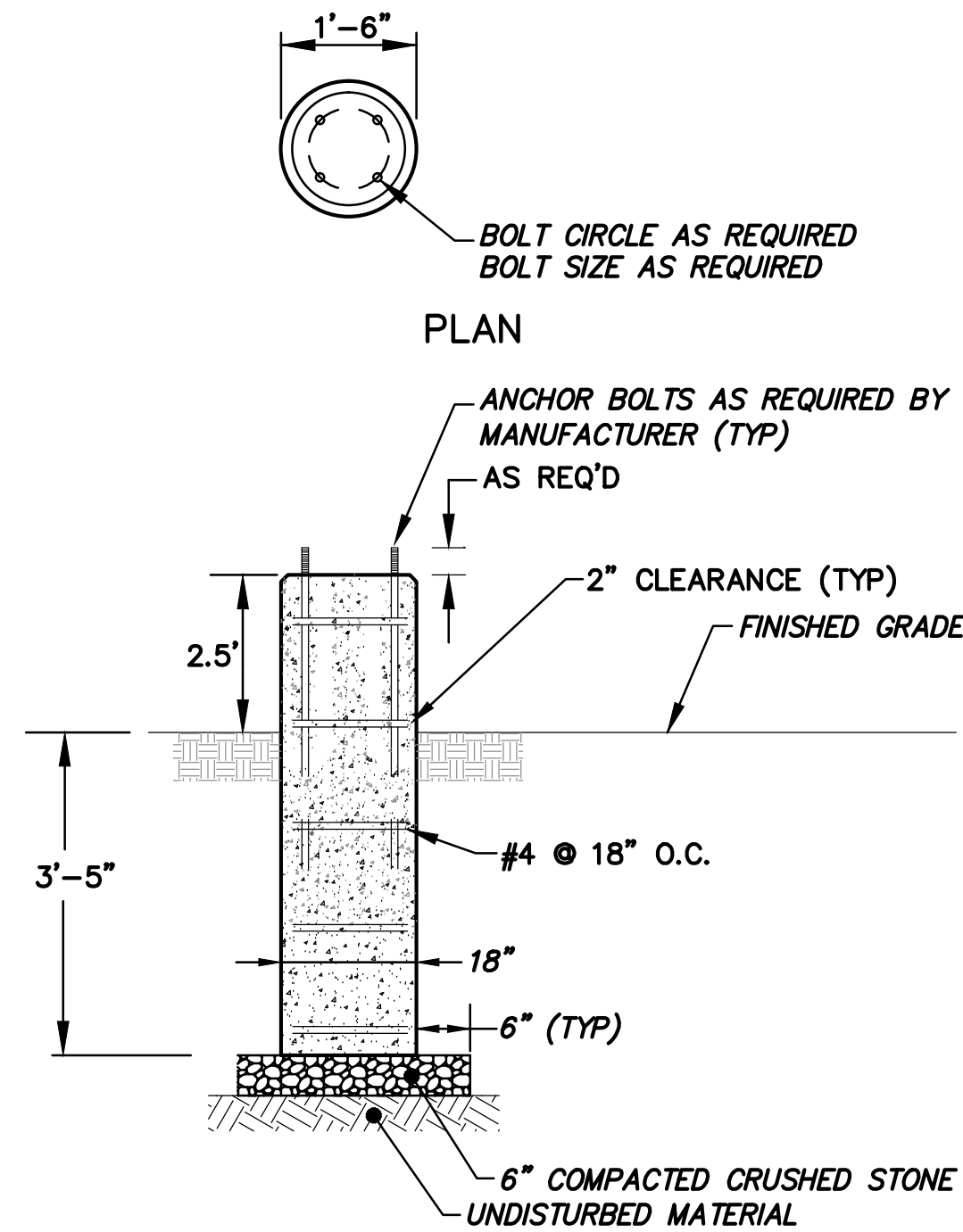
N.T.S.



- NOTES:
- NYLOPLAST COVER AT LOADING DOCK SHALL BE A HEAVY DUTY (HS-20 LOADING) 15" SQUARE COVER.
  - NYLOPLAST COVERS ON CONSOLIDATION AREA SHALL BE LIGHT DUTY.
  - PIPE CONNECTIONS SHALL BE WATER TIGHT.

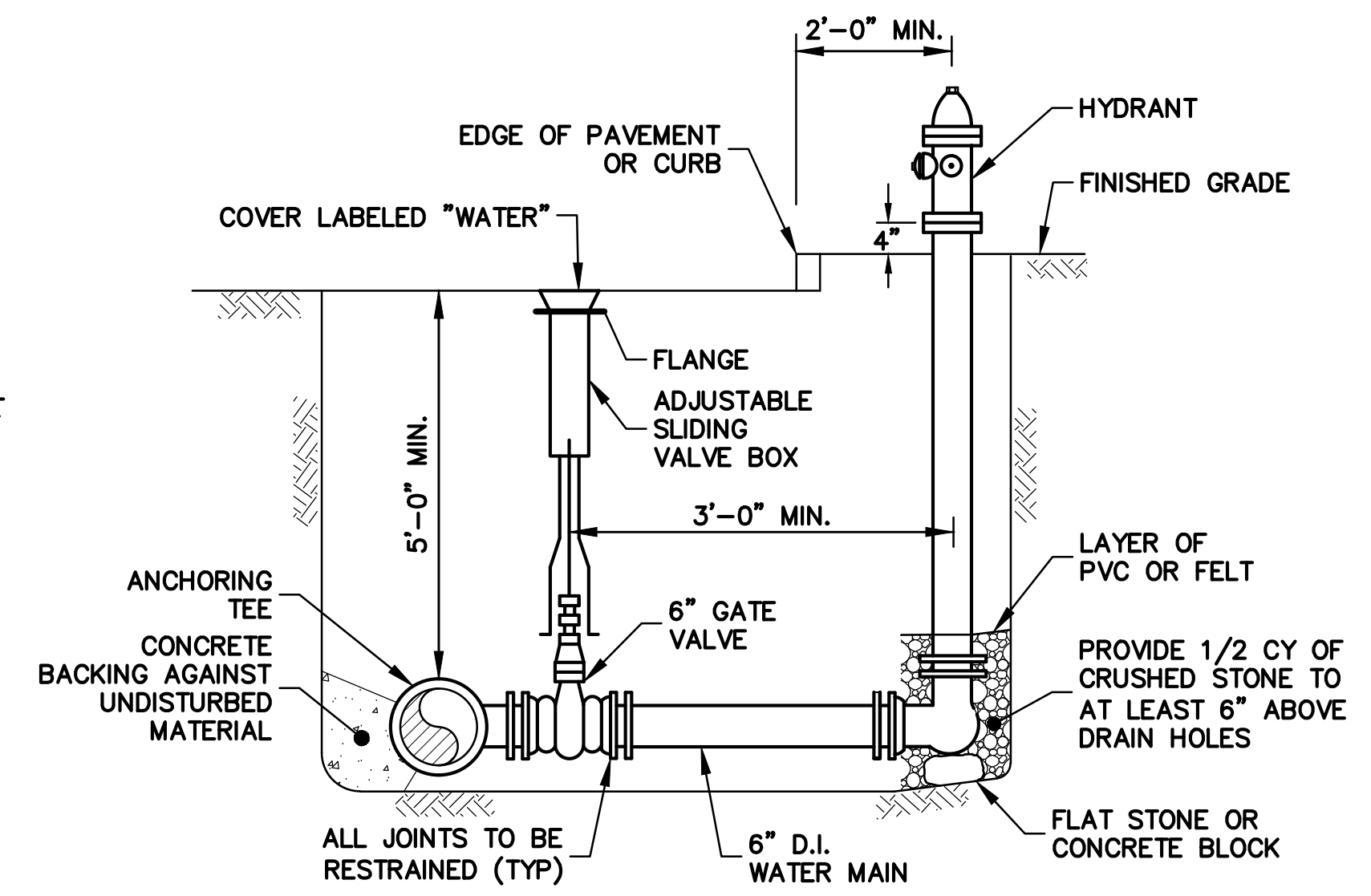
### DRAIN BASIN DETAIL

N.T.S.



### LIGHTING FIXTURE FOOTING DETAIL

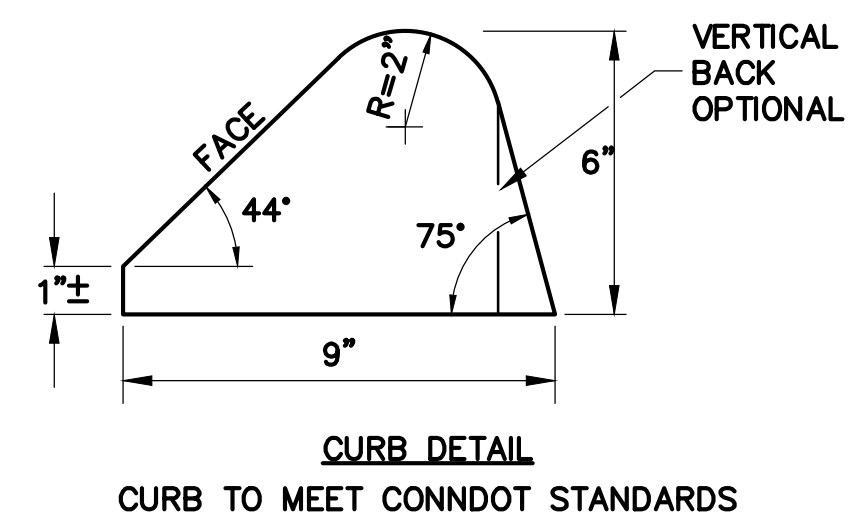
NOT TO SCALE



- NOTES:
- USE TWO 6" BENDS OR OFFSET ON LATERAL TO ACHIEVE REQUIRED HYDRANT ELEVATION IF NECESSARY

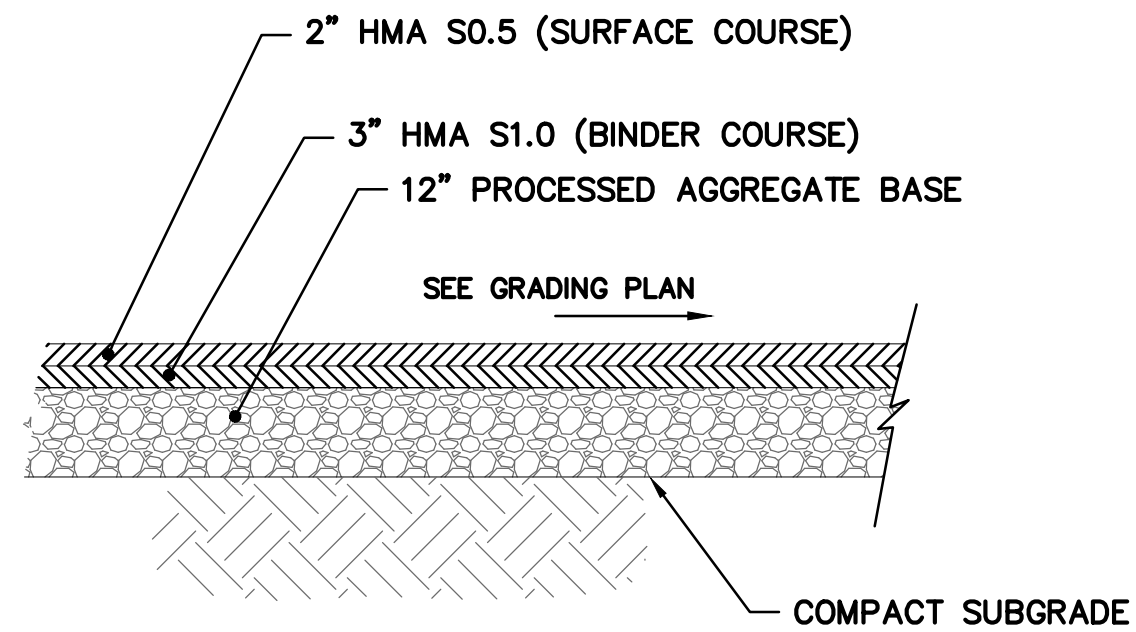
### HYDRANT AND VALVE DETAIL

N.T.S.



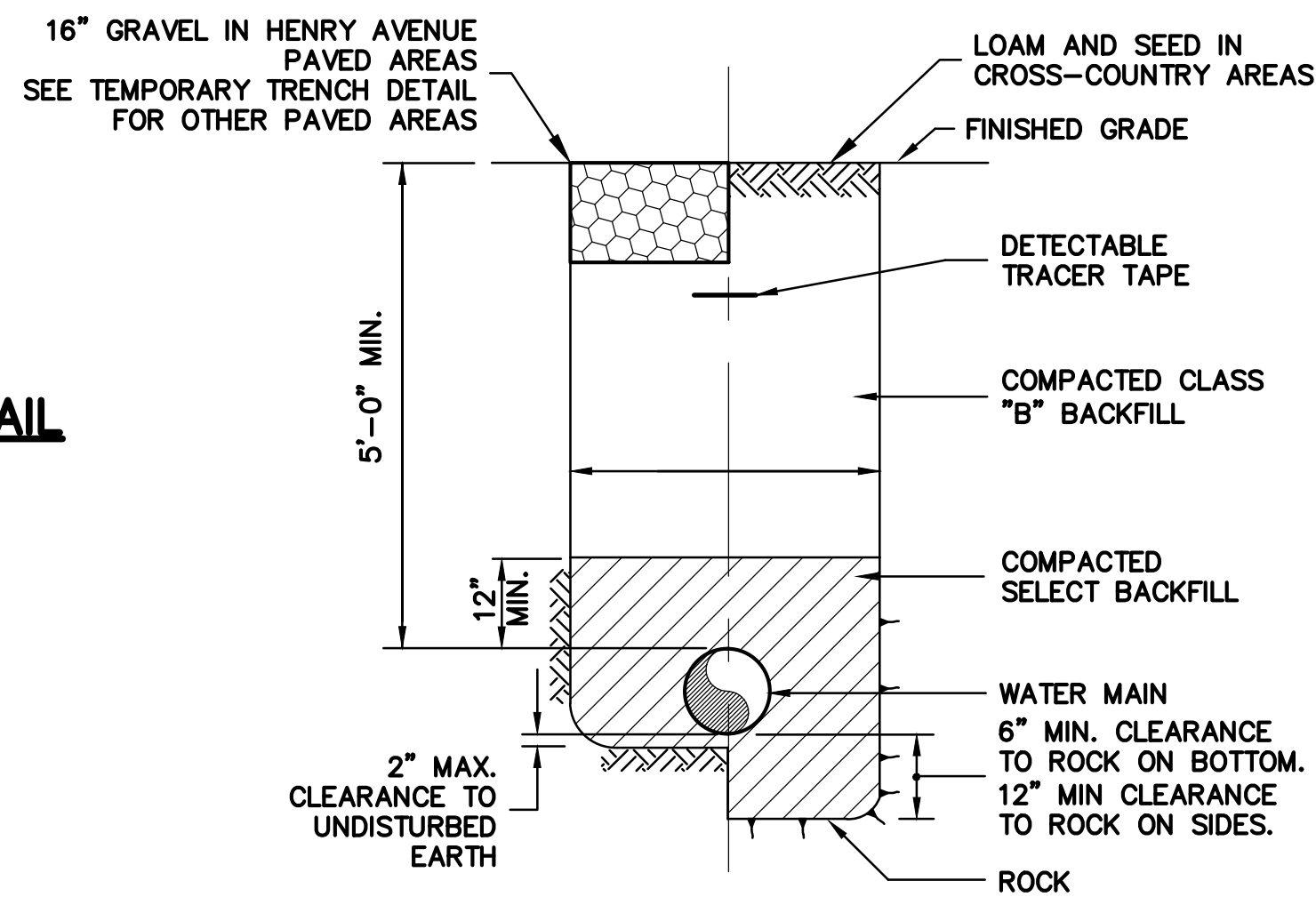
### CURB DETAIL

CURB TO MEET CONDOT STANDARDS



### HEAVY DUTY - PAVEMENT STRUCTURE DETAIL

(AT LOADING DOCK)  
N.T.S.



### WATER MAIN TRENCH DETAIL

N.T.S.

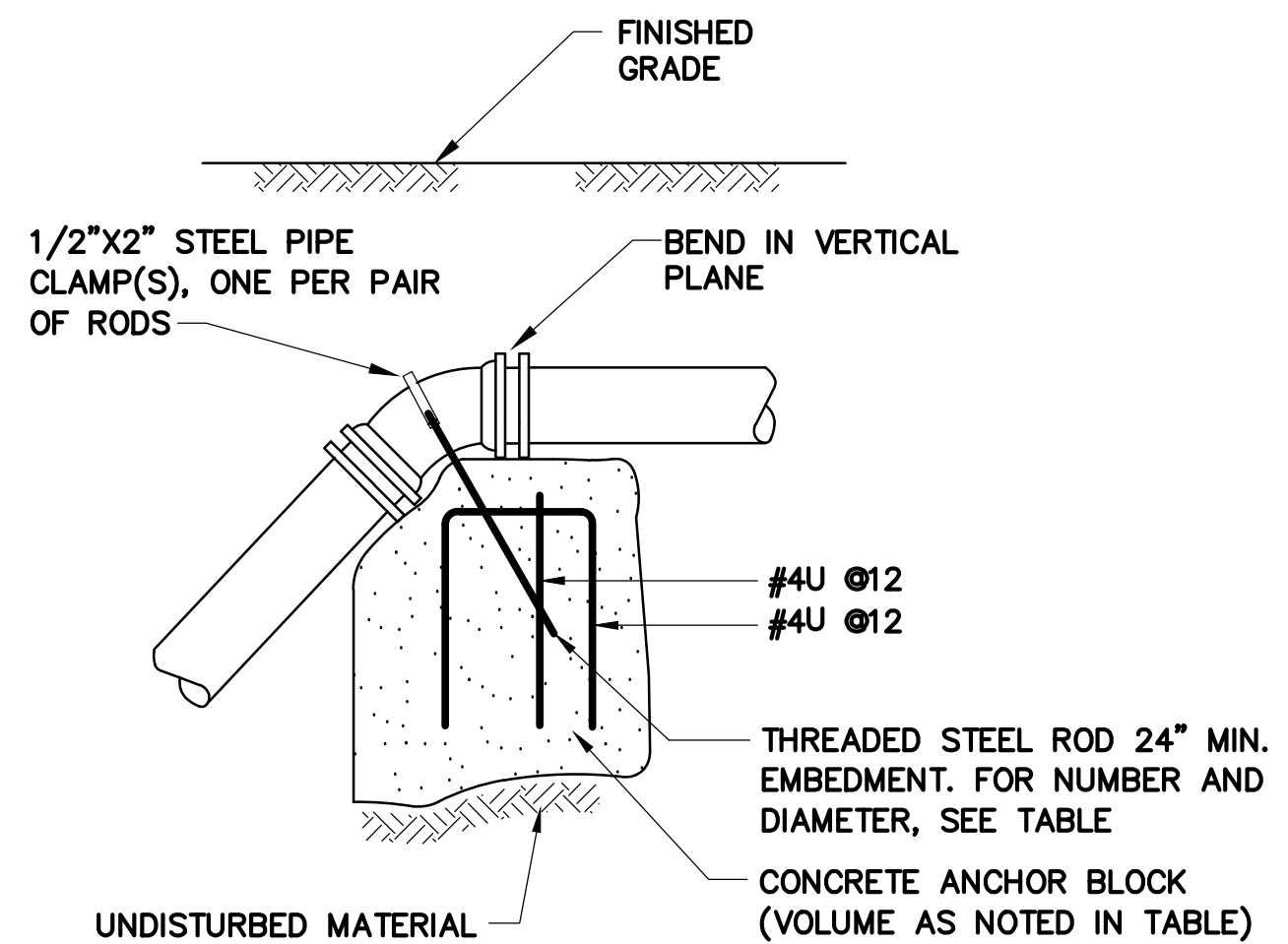
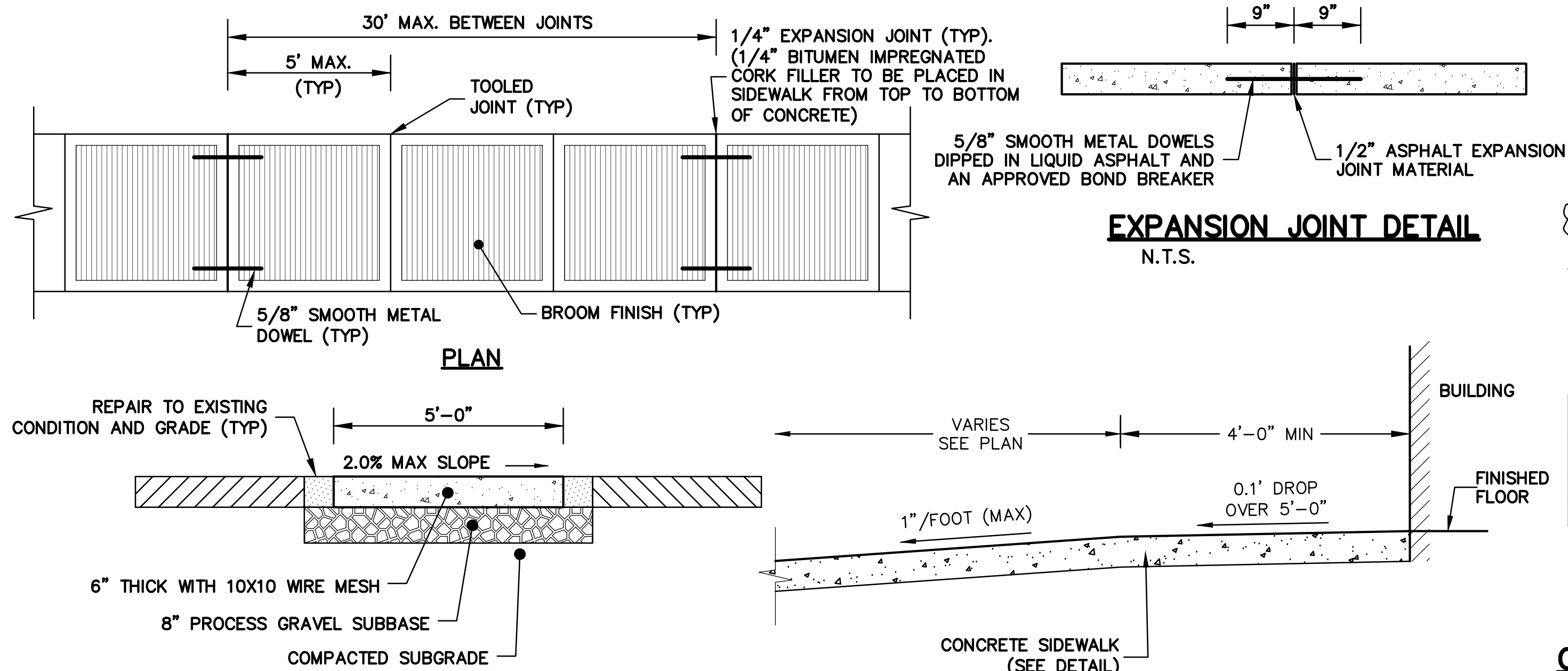


Table Of Dimensions For Anchor Blocks		NO. AND SIZE OF THREADED RODS	
BEND SIZE	Volume	NO.	DIAM.
6"-22.5"	0.6 C.Y.	2	1/2"
6"-45"	1.0 C.Y.	2	1/2"
8"-22.5"	1.0 C.Y.	2	1/2"
8"-45"	1.8 C.Y.	2	3/4"
12"-22.5"	2.5 C.Y.	2	3/4"
12" 45"	4.0 C.Y.	4	3/4"

### ANCHOR BLOCK DETAIL

N.T.S.



### CONCRETE SIDEWALK DETAIL

N.T.S.

### TYPICAL GRADING AT ENTRY DOORS

N.T.S.

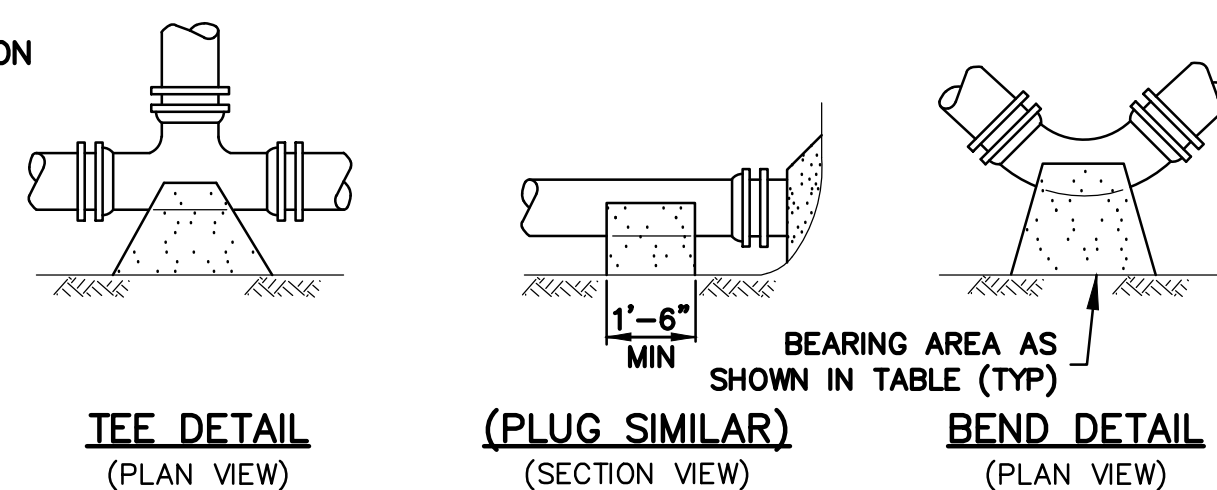


TABLE OF CONCRETE THRUST RESTRAINT MINIMUM BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS				
SIZE OF MAIN	90° BENDS, TEES, CAPS AND PLUGS	45° BENDS AND WYES	22-1/2° BENDS	11-1/4° BENDS
6", 8"	5	4	2	2
10", 12"	12	9	5	2

- NOTES:
- CONCRETE THRUST RESTRAINT SHALL ONLY BE USED WHERE OTHER MEANS OF RESTRAINT ARE NOT FEASIBLE.
  - CONTRACTOR SHALL USE CARE TO AVOID PLACEMENT OF CONCRETE ON THE FITTING JOINTS.

### CONCRETE THRUST RESTRAINT FOR FITTINGS

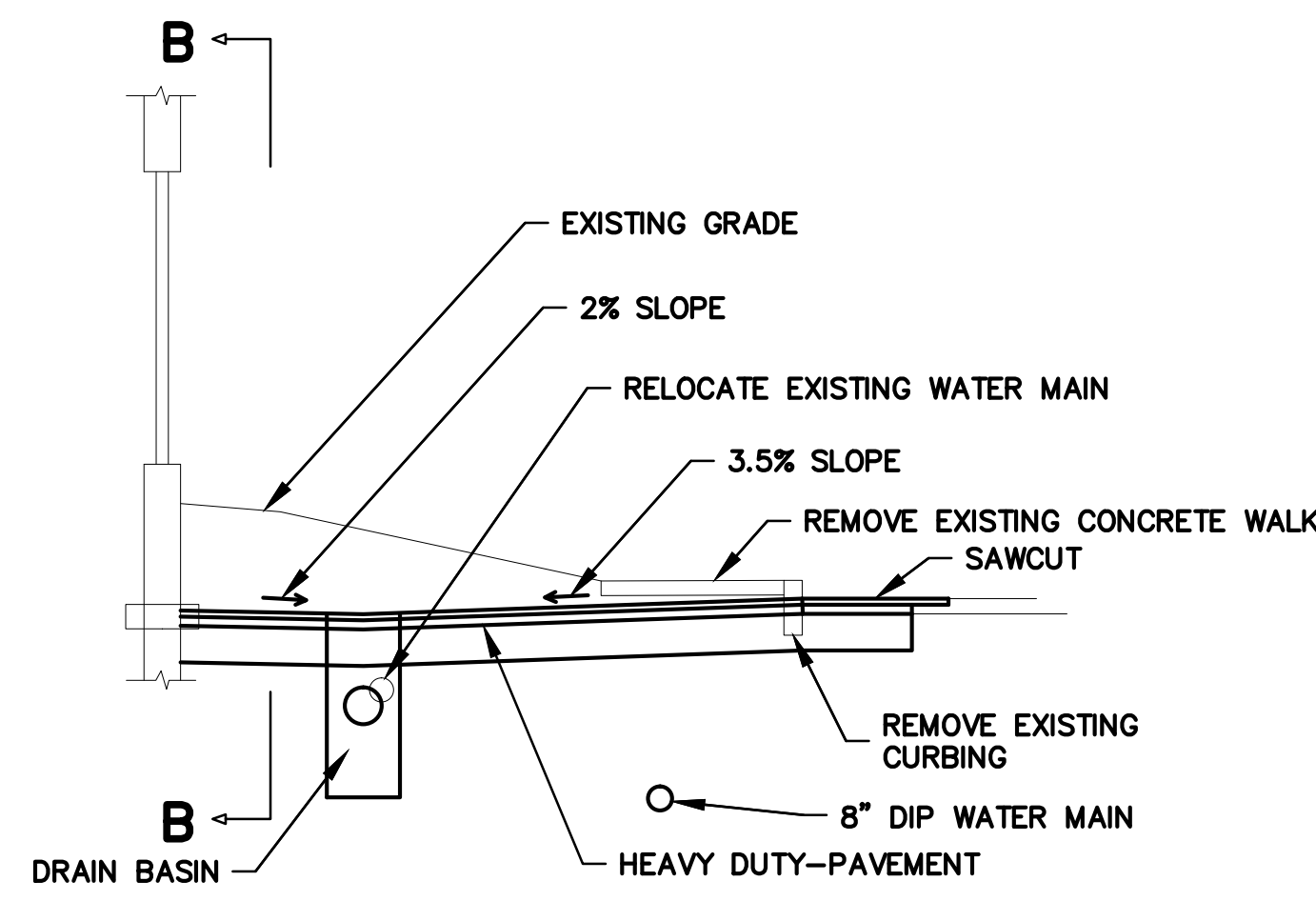
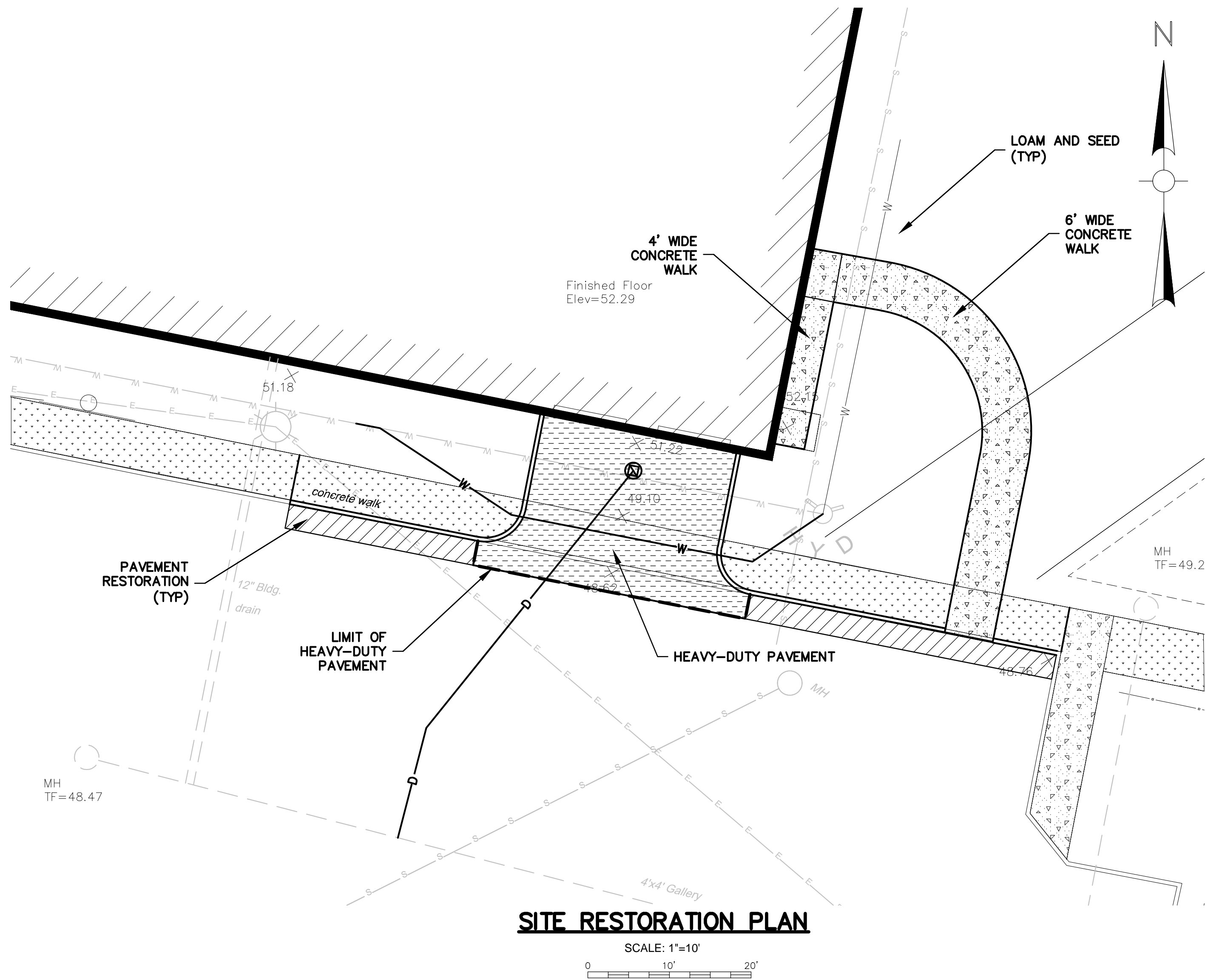
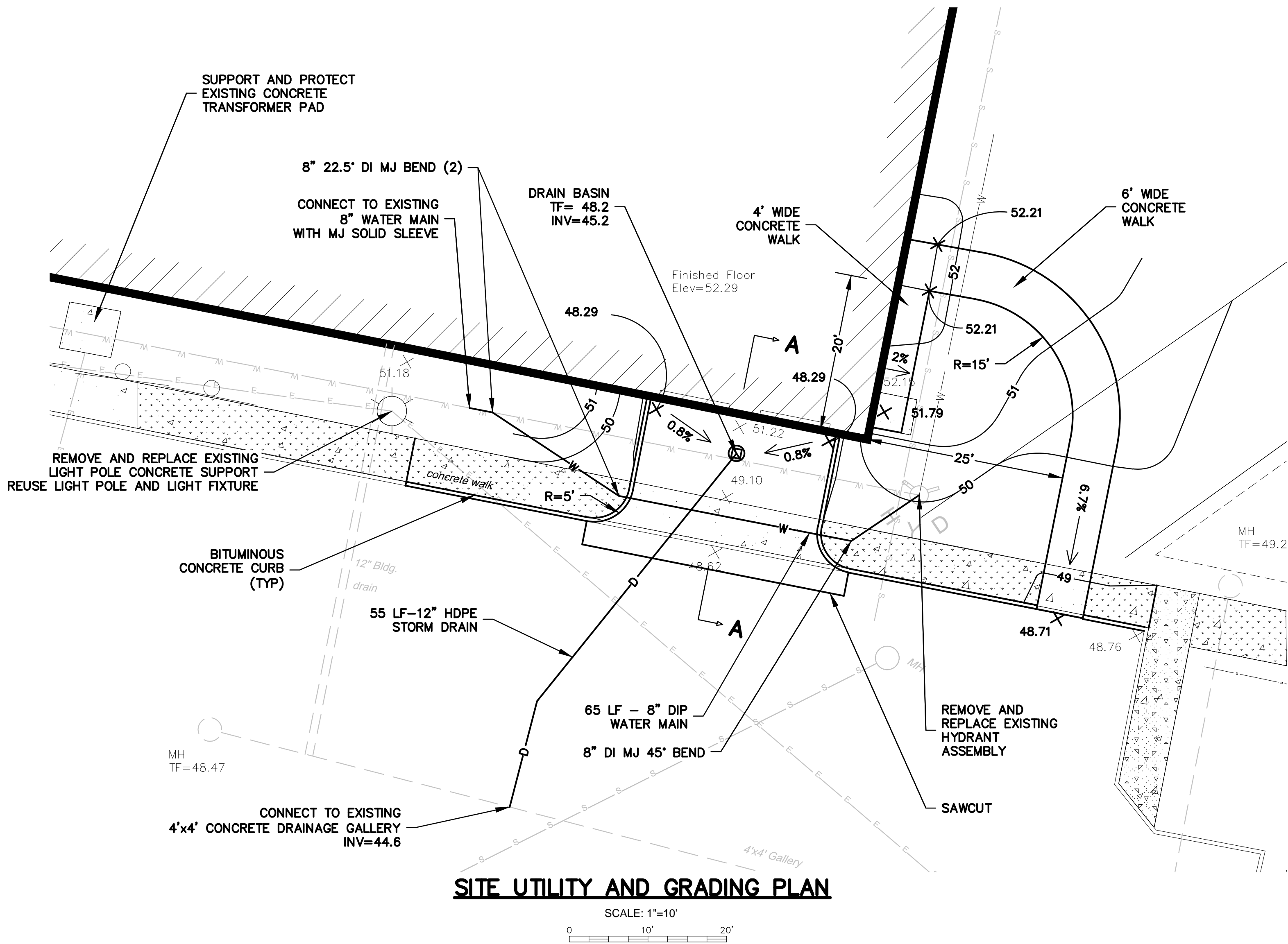
N.T.S.

PIPE SIZE	90° BEND	45° BEND OR WYE BRANCH	22 1/2° BEND	11 1/4° BEND	PLUG OR CAP	TEE (BRANCH)
6"	25 (30.5)	10.5 (12.5)	5 (6)	2.5 (3)	43 (64)	34 (51)
8"	33 (40)	13.5 (16.5)	6.5 (8)	3 (4)	55 (82)	47 (70)
10"	40 (48.5)	16.5 (20)	8 (9.5)	4 (5)	67 (100)	58 (87)
12"	47 (56.5)	19.5 (23.5)	9.5 (11.5)	4.5 (5.5)	79 (118)	70 (105)

- NOTES:
- ALL LENGTHS SHOWN IN FEET.
  - RESTRAINED LENGTHS LISTED IN PARENTHESES ARE FOR PIPE WRAPPED IN POLYETHYLENE. THE OTHER ASSOCIATED LENGTHS ARE FOR PLAIN UNWRAPPED DUCTILE IRON PIPE.
  - THE CONTRACTOR SHALL USE THIS TABLE IN CONJUNCTION WITH THE SPECIFIED PIPE SPECIFICATION SECTION.

### TABLE 1 - REQUIRED LENGTH OF RESTRAINED JOINTS

N.T.S.

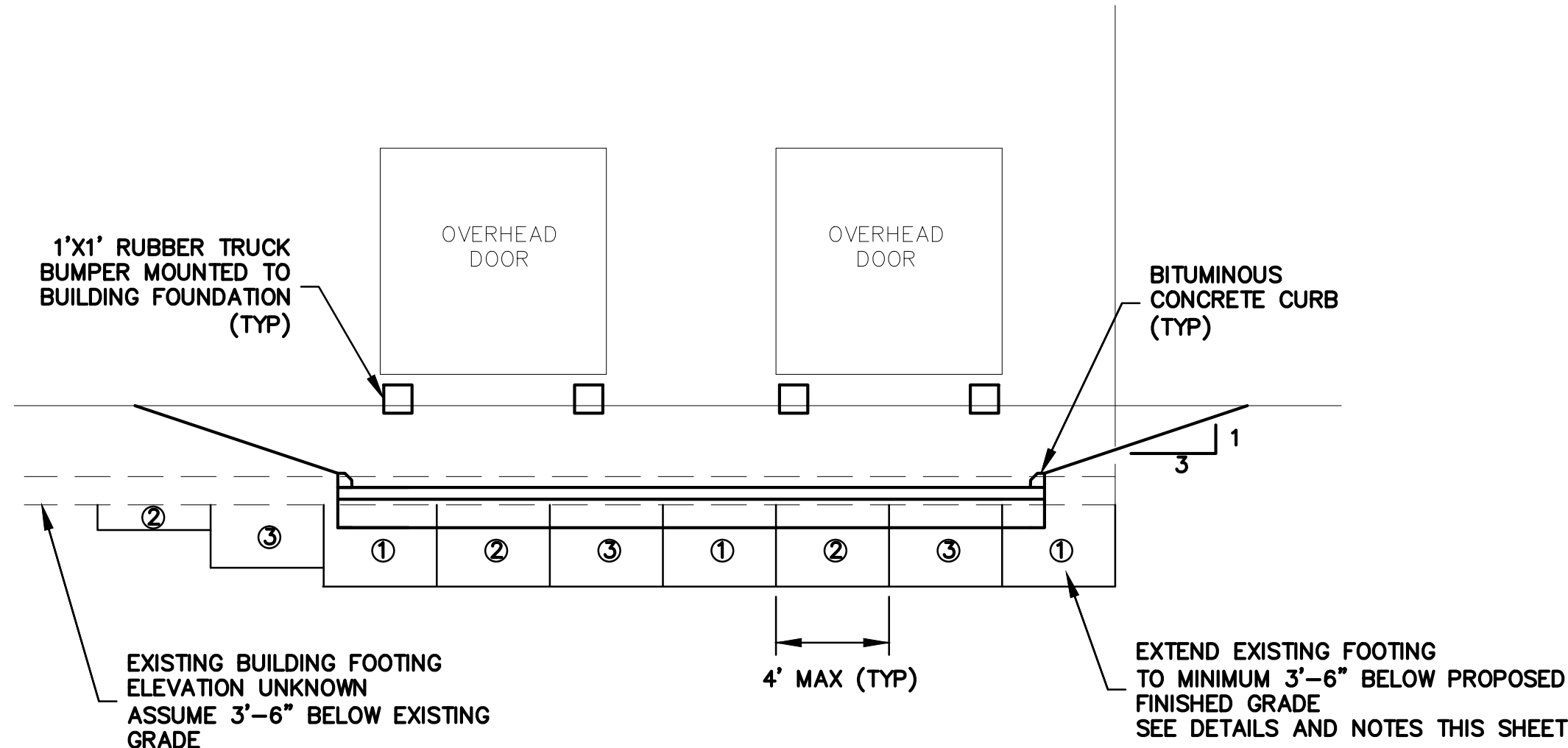


**GENERAL NOTES:**

1. THE CONTRACTOR SHALL CALL "CALL BEFORE YOU DIG" AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE CBYD PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
2. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN.
3. TEST PITS TO LOCATE EXISTING UTILITIES MAY BE ORDERED BY THE ENGINEER.
4. STONE WALLS, FENCES, MAIL BOXES, SIGNS, CURBS, LIGHT POLES, ETC. SHALL BE REMOVED AND REPLACED AS NECESSARY TO PERFORM THE WORK. UNLESS OTHERWISE INDICATED, ALL SUCH WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE PROJECT.
5. ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
6. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
7. CONCRETE CRADLES OR ARCHES SHALL BE CONSTRUCTED WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY THE ENGINEER. UNLESS OTHERWISE INDICATED, CONCRETE USED FOR PIPE ANCHOR BLOCKS, BACKING, PIPE CRADLES, ARCHES, AND FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
8. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS.

9. APPROVED JOINT RESTRAINT METHODS SHALL BE PROVIDED FOR WATER MAINS WHERE ANY BENDS, TEES, PLUGS, OR WYES ARE INSTALLED. CONCRETE THRUST BLOCKS, ANCHOR BLOCKS AND TIE RODS MAY BE USED FOR 6-INCH AND 8-INCH PIPE WHERE JOINT RESTRAINT IS NOT FEASIBLE. FOR THRUST BLOCK DETAILS AND MINIMUM BLOCK BEARING AREAS.
10. NEW WATER MAINS AND SERVICES SHALL BE INSTALLED AT THE MINIMUM DEPTH FROM FINISH GRADE TO TOP OF PIPE AS SHOWN ON THE DRAWINGS. WHERE NECESSARY, NEW WATER MAINS SHALL BE INSTALLED AT A GREATER DEPTH TO CLEAR OBSTACLES AT NO ADDITIONAL COST TO THE OWNER. MINIMUM CLEARANCES TO UTILITIES, AS SHOWN ON THE DRAWINGS SHALL BE MAINTAINED.
11. EXISTING MAIN AND SERVICES SHALL NOT BE CONNECTED TO THE PROPOSED WATER MAIN UNTIL THAT MAIN HAS PASSED PRESSURE TEST AND DISINFECTION REQUIREMENTS AND HAS BEEN APPROVED BY THE OWNER.
12. EXISTING WATER MAINS OR SERVICES SHALL NOT BE ABANDONED WITHOUT THE APPROVAL OF THE OWNER. WATER SERVICE SHALL NOT BE INTERRUPTED MORE THAN 4 HOURS WITHOUT PRIOR APPROVAL OF THE OWNER.
13. ALL HYDRANTS AND MANHOLE CASTINGS SHALL BE REUSED.
14. ANY HYDRANT WHICH IS NOT IN SERVICE SHALL BE COVERED WITH A SECURELY FASTENED BURLAP BAG.
15. ALL SERVICE CONNECTIONS SHALL BE TRANSFERRED TO NEW WATER MAIN AS REQUIRED.
16. THE LOCATION OF PIPES, CAPS, REDUCERS, BENDS, AND OTHER FITTINGS AT POINTS OF CONNECTIONS TO EXISTING MAINS IS APPROXIMATE.
17. CONTRACTOR SHALL DIG A TEST PIT AT EACH UTILITY CONNECTION LOCATION

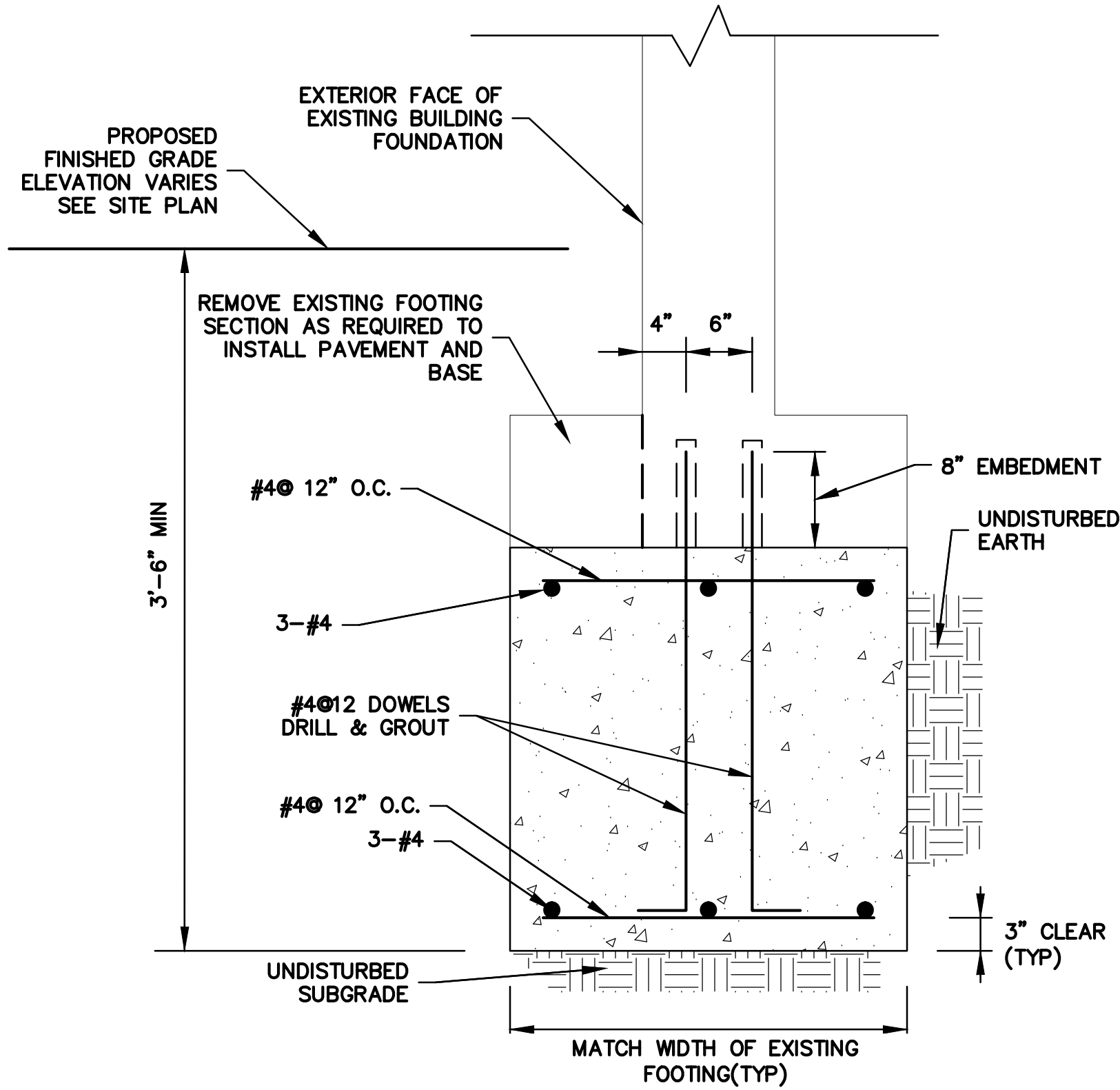
- TO DETERMINE THE DIAMETER AND MATERIAL OF THE EXISTING PIPE AND THE LOCATION OF THE TIE-IN POINT.
18. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES WHICH HOLD WATER IN THE SYSTEM. THE OWNER WILL, ON 48 HOURS NOTICE FROM THE CONTRACTOR, OPEN AND/OR CLOSE ANY VALVES REQUIRED FOR DRAINING OR ADMITTING WATER TO THE VARIOUS SECTIONS OF THE WATER MAINS. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY IN WRITING 48 HOURS IN ADVANCE, ANY OCCUPANT THAT WILL BE WITHOUT WATER DUE TO A SHUTDOWN.
  19. SOME WATER AND SEWER SERVICE CONNECTIONS MAY NOT BE SHOWN ON THE DRAWINGS. THE OWNER WILL MARK THE LOCATION OF SUCH CONNECTIONS, PROVIDED THE CONTRACTOR GIVES THE OWNER AT LEAST 24 HOURS ADVANCE NOTICE.
  20. INLET PROTECTION SHALL BE PROVIDED ON THE EXISTING AND PROPOSED CATCH BASINS FOR THE DURATION OF THE PROJECT.
  21. ALL PROPOSED PAVING SHALL MATCH GRADE AT ROADWAY INTERSECTIONS, SIDEWALKS, STAIRWAYS, AND BUILDING ENTRANCES.
  22. EXISTING UTILITIES, TOPOGRAPHIC SURVEY, EDGE OF PAVEMENT, UTILITY POLE LOCATIONS, SIDEWALKS, AND LOCATIONS OF ABOVE GROUND FEATURES STRUCTURES FROM FIELD SURVEY PERFORMED BY AECOM, INC. MAY 2015
  23. ELEVATIONS AND COORDINATES SHOWN BASED UPON EXISTING INFORMATION.
  24. THE CONTRACTOR SHALL COMPLETE ALL LAYOUTS, SURVEYS, ETC. REQUIRED FOR CONSTRUCTION OF THE PROJECT AS SHOWN AND AS SPECIFIED
  25. SEE SHEET S-1 FOR FOUNDATION UNDERPINNING DETAILS AND NOTES.



**LOADING DOCK ELEVATION**  
SCALE: 1"=2'

**UNDERPINNING NOTES:**

1. CONTRACTOR SHALL UNDERPIN THE EXISTING FOUNDATION BY EXTENDING EXISTING FOOTING TO A MINIMUM 3'-6" BELOW PROPOSED FINISHED GRADE.
2. EXCAVATION AND PLACEMENT OF CONCRETE UNDERPINNING SHALL BE INSTALLED IN PHASES, AS SHOWN IN LOADING DOCK ELEVATION. EACH PHASE SHALL INCLUDE THREE 4' SECTIONS AT 12' ON CENTER. EXCAVATION OF EACH SECTION SHALL BE LIMITED TO 6'. ① - INDICATES SEQUENCE OF UNDERPINNING CONCRETE POURS. CONTRACTOR MAY VARY SEQUENCE UPON WRITTEN APPROVAL FROM THE ENGINEER.
3. CONCRETE SHALL BE CLASS F, 4,000 PSI.
4. CONCRETE SHALL BE PLACED ON UNDISTURBED SOIL.
5. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.

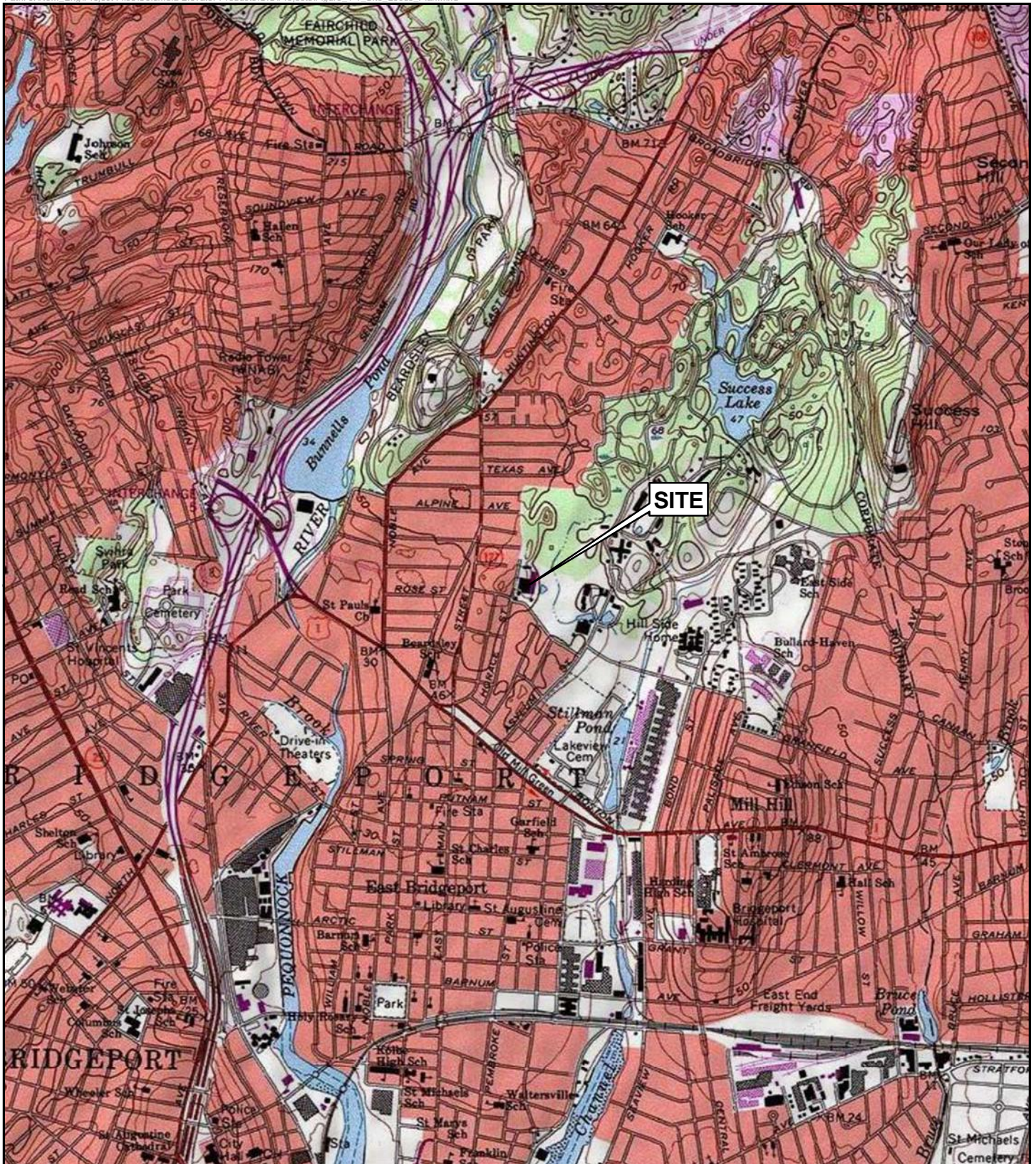


**TYPICAL CONCRETE UNDERPINNING SECTION**  
N.T.S.

No.	Date	Dr.By	Ck.By	App.By	Description

MDL REALTY, LLC 380 HORACE ST., BRIDGEPORT, CT	REMEDIAL DESIGN ASH CONSOLIDATION CLOSURE CONSTRUCTION	FILE NO.	CONTRACT	JOB NO.	DR BY	DSN BY	CHK BY	APP BY
MDL REALTY	SCALE	—	2160197	L.E.C.	L.E.C.	P.J.G.	—	—

**Appendix B.**  
**AECOM Figures, Tables and**  
**Laboratory Analytical Reports**

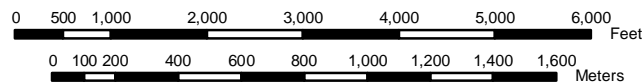


#### Map Location



#### Site Locus Map

Columbia Elevator Products, Inc.  
380 Horace Street  
Bridgeport, Connecticut



Map Projection: State Plane, NAD 83, Feet.

Image Source: 2011 National Geographic Society, USGS Topographic Quadrangle: Bridgeport, CT.

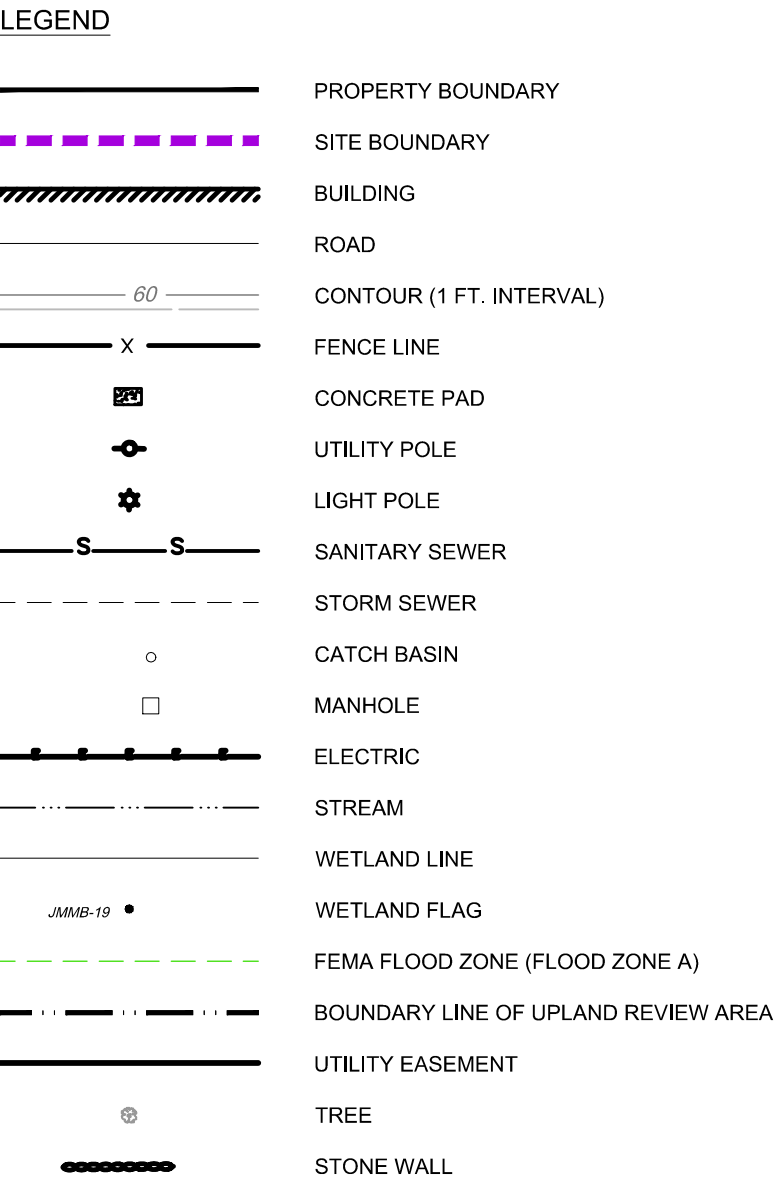
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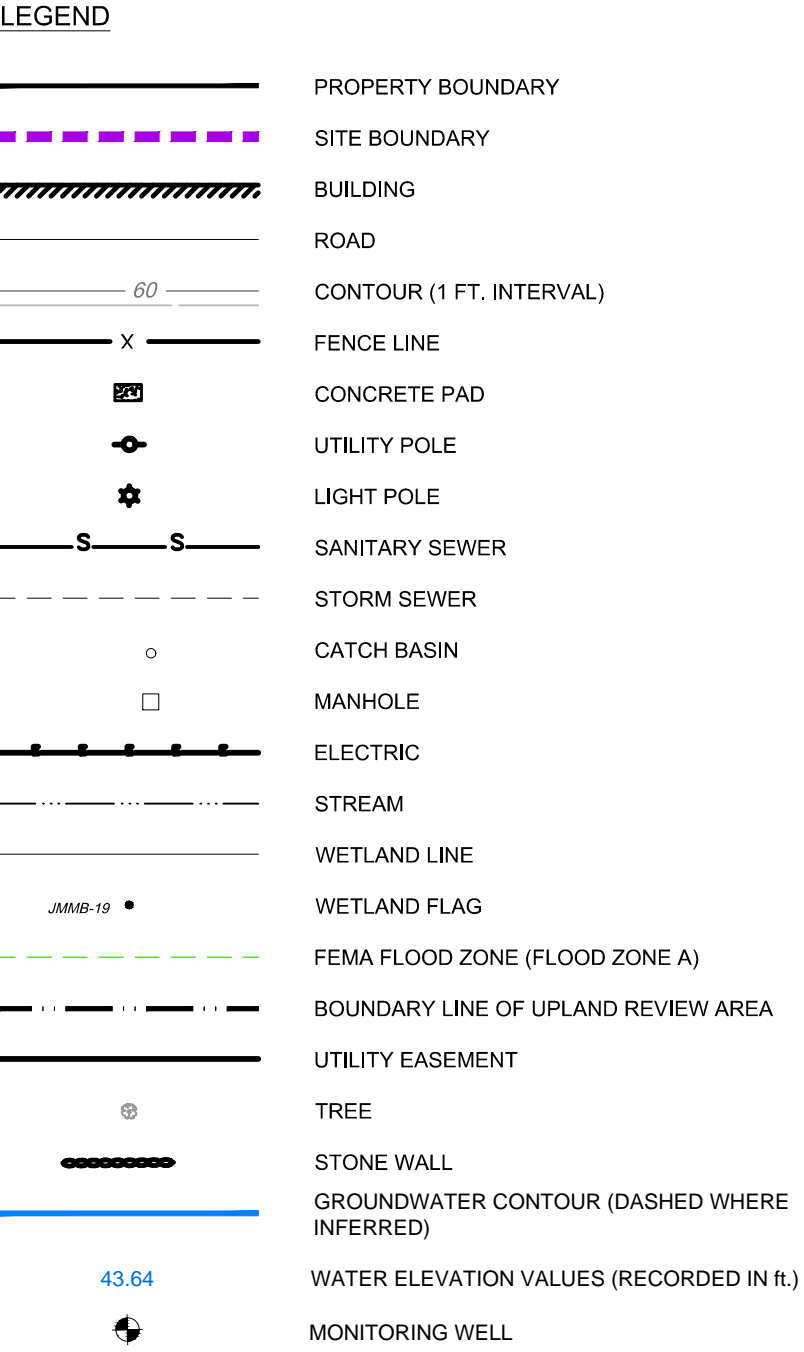
**AECOM**

Figure 1-1

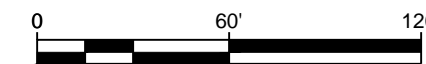
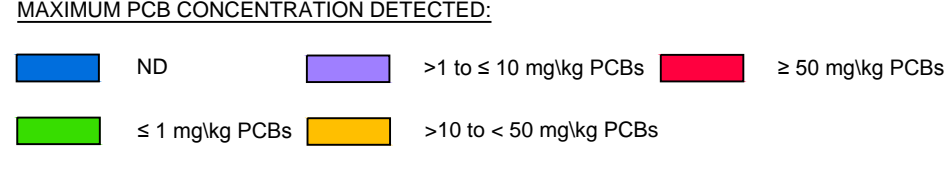
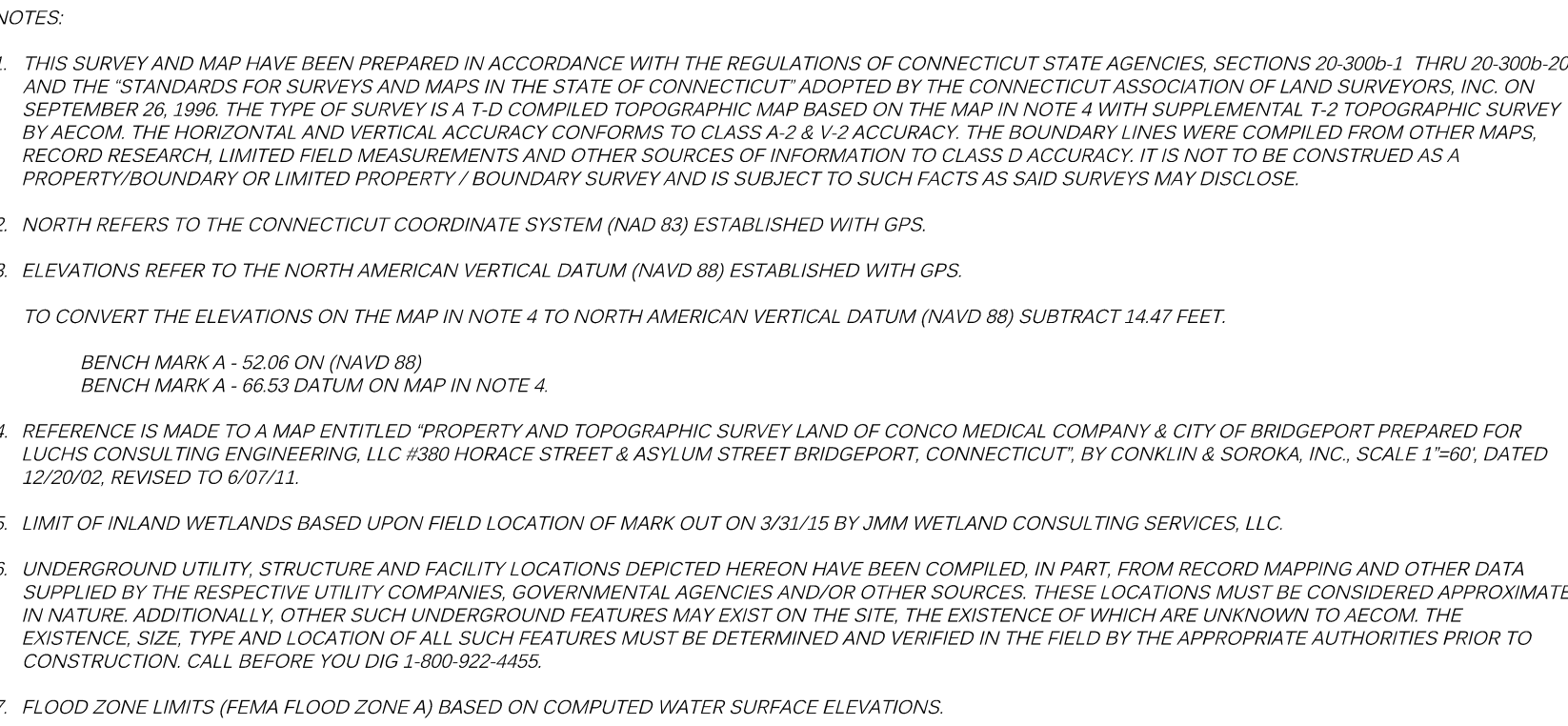
Date: September 2014

Project #: 60145162





1. THIS SURVEY AND MAP HAVE BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300a-1 THRU 20-300a-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 9, 1998. THE TYPE OF SURVEY IS A T.O COMPILED TOPOGRAPHIC MAP BASED ON THE MAP IN NOTE 4 WITH SUPPLEMENTAL T-2 TOPOGRAPHIC SURVEY BY RECORD. THE HORIZONTAL AND VERTICAL ACCURACY CONFORMS TO CLASS A & V-2 ACCURACY. THE BOUNDARY LINES WERE COMPILED FROM OTHER MAPS. RECENT RESEARCH LIMITED FIELD MEASUREMENTS AND OTHER SOURCES OF INFORMATION TO CLASS A ACCURACY. IF IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY / BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE.
2. NORTH REFERS TO THE CONNECTICUT COORDINATE SYSTEM (NAD 83) ESTABLISHED WITH GPS.
3. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAV 88) ESTABLISHED WITH GPS.  
  
TO CONVERT THE ELEVATIONS ON THE MAP IN NOTE 4 TO NORTH AMERICAN VERTICAL DATUM (NAV 88) SUBTRACT 14.47 FEET.  
  
BENCH MARK A - 52.06 ON (NAV 88)  
BENCH MARK A - 66.53 DATUM ON MAP IN NOTE 4
4. REFERENCE IS MADE TO A MAP ENTITLED "PROPERTY AND TOPOGRAPHIC SURVEY LAND OF CONCO MEDICAL COMPANY & CITY OF BRIDGEPORT PREPARED FOR LUCHS CONSULTING ENGINEERING, LLC 4380 HORACE STREET & ASYLUM STREET BRIDGEPORT, CONNECTICUT" BY CONKLIN & SOROKA, INC. SCALE 1"=60'; DATED 12/20/02; REVISED TO 6/07/11.
5. LIMIT OF INLAND WETLANDS BASED UPON FIELD LOCATION OF MARK OUT ON 3/31/15 BY JMM WETLAND CONSULTING SERVICES, LLC.
6. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH UNDERGROUND FEATURES MAY EXIST ON THE SITE. THE EXISTENCE OF WHICH ARE UNKNOWN TO AECOM. THE EXISTENCE, SIZE, TYPE, LOCATION AND ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1.800.922.4455.
7. FLOOD ZONE LIMITS (FEMA FLOOD ZONE A) BASED ON COMPUTED WATER SURFACE ELEVATIONS
8. GROUNDWATER CONTOURS ARE BASED ON WATER ELEVATIONS MEASURED ON OCTOBER 10, 2012



**Appendix C.**  
**Historical Haley & Aldrich**  
**Investigation Information**

**Appendix D.**  
**Historical GZA Investigation**  
**Information**

**Appendix E.**  
**Written Certification in Accordance**  
**with §761(a)(3)(E)**

May 17, 2016

Kimberly N. Tisa, Region 1 PCB Coordinator  
United States Environmental Protection Agency  
5 Post Office Square, OSRR07-2  
Boston, MA 02109-3912

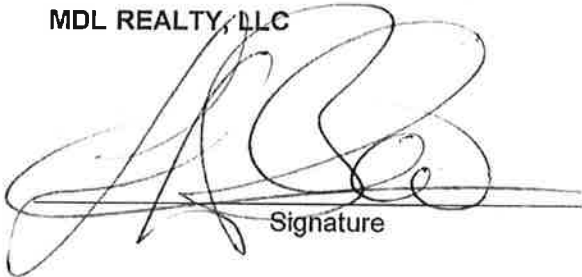
Subject: Written Certification Required Under §761.61(a)(3)(E)  
Ash Area Remediation  
MDL Realty, LLC  
380 Horace Street, Bridgeport, Connecticut

Dear Ms. Tisa:

To the best of my knowledge, I certify that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to access or characterize the PCB contamination at the MDL Realty, LLC are on file at the Weston & Sampson offices located at 273 Dividend Road, Rocky Hill, CT and are available for EPA inspection.

If you have any questions, comments or concerns you may contact Malcolm Beeler via phone at 860-513-1473 ext 3077 or via email at [beelerm@wseinc.com](mailto:beelerm@wseinc.com).

MDL REALTY, LLC



Signature

Louis "L" Blaiotta, Jr.  
Member  
MDL Realty, LLC

cc: Pamela Elkow, Carmody, Torrance, Sandak and Hennessy, LLP  
Amanda Killeen, CTDEEP